

AFIP-6 Irradiation Summary Report

D. M. Perez
M. A. Lillo
G. S. Chang
G. A. Roth
N. E. Woolstenhulme
D. M. Wachs

September 2011



The INL is a U.S. Department of Energy National Laboratory
operated by Battelle Energy Alliance

AFIP-6 Irradiation Summary Report

D. M. Perez
M. A. Lillo
G. S. Chang
G. A. Roth
N. E. Woolstenhulme
D. M. Wachs

September 2011

**Idaho National Laboratory
Idaho Falls, Idaho 83415**

<http://www.inl.gov>

Prepared for the
U.S. Department of Energy
Office of National Nuclear Security Administration
Under DOE Idaho Operations Office
Contract DE-AC07-05ID14517

DISCLAIMER

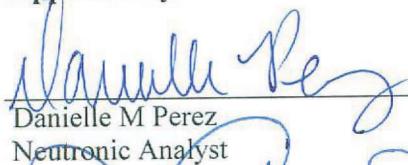
This information was prepared as an account of work sponsored by an agency of the U.S. Government. Neither the U.S. Government nor any agency thereof, nor any of their employees, makes any warranty, expressed or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness, of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. References herein to any specific commercial product, process, or service by trade name, trade mark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the U.S. Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the U.S. Government or any agency thereof.

AFIP-6 Irradiation Summary Report

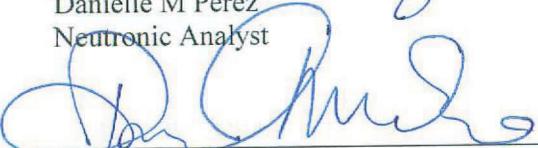
INL/EXT-11-23296

September 2011

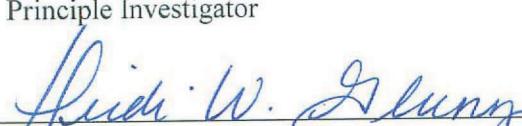
Approved by:


Danielle M Perez
Neutronic Analyst

9/14/11
Date


Daniel M Wachs
Principle Investigator

9/13/11
Date


Heidi W Glunz
Experiment Manager

9/15/2011
Date

SUMMARY

The Advanced Test Reactor (ATR) Full size plate In center flux trap Position (AFIP) experiment AFIP-6 was designed to evaluate the performance of monolithic uranium-molybdenum (U-Mo) fuels at a length prototypic to that of the ATR fuel plates (45 inches in length). The AFIP-6 test was the first test with plates in a swaged condition with longer fuel zones of approximately 22.5 inches in length^{1,2}.

The following report summarizes the life of the AFIP-6 experiment through end of irradiation, including a brief description of the safety analysis, as-run neutronic analysis results, hydraulic testing results, and thermal analysis results.

CONTENTS

| | |
|--|----|
| SUMMARY | i |
| ACRONYMS | v |
| 1. EXPERIMENT GOALS..... | 1 |
| 2. CONSTITUENT MASSES AND DENSITIES | 2 |
| 3. EXPERIMENT HARDWARE..... | 3 |
| 4. SAFETY ANALYSIS | 9 |
| 5. IRRADIATION HISTORY | 10 |
| 6. AS-RUN NUCLEAR ANALYSIS..... | 11 |
| 6.1 Neutronics | 11 |
| 6.2 Axial Gradient..... | 20 |
| 7. HYDRAULIC TESTING | 23 |
| 8. AS-RUN THERMAL ANALYSIS | 24 |
| 8.1 Coolant Channel Temperature | 24 |
| 8.2 Plate Surface Temperature | 26 |
| 9. REFERENCES | 31 |
| Appendix A Individual Plate Power and Fission Density Plots..... | 32 |
| Appendix B Plate Surface Temperatures | 79 |

FIGURES

| | |
|--|----|
| Figure 1: MCNP model X-Y view of the AFIP-6 test assembly ³ | 1 |
| Figure 2: DWG 635793 ATR Full Size Plate in Center Flux Trap Position (AFIP) Test Train Assembly..... | 4 |
| Figure 3: Isometric view of the AFIP-6 Test Train Assembly..... | 5 |
| Figure 4: DWG-759557 REV 0 AFIP-6 Frame Assembly..... | 6 |
| Figure 5: DWG-759558 REV 0 AFIP-6 Fuel Plate..... | 7 |
| Figure 6: Radial Cross Section of the AFIP Test Train Assembly..... | 8 |
| Figure 7: Hourly constrained lobe power history for Cycle 146B..... | 10 |
| Figure 8: AFIP-6 Axial Neutron Flux Profile for Plate Position A. ³ | 20 |
| Figure 9: AFIP-6 Axial Neutron Flux Profile for Plate Position B. ³ | 21 |
| Figure 10: AFIP-6 As-Run Fission Density Profile for Both Plate Positions. ³ | 22 |
| Figure 11: Coolant channel temperatures as a function of location along the AFIP-6 test assembly at BOC 146B (0.0 EFPD). | 24 |
| Figure 12: Coolant channel temperatures as a function of location along the AFIP-6 test assembly at MOC1 146B (18.0 EFPD). | 25 |
| Figure 14: Coolant channel temperatures as a function of location along the AFIP-6 test assembly at EOC 146B (39.2 EFPD). | 26 |

TABLES

| | |
|--|----|
| Table 1: Experiment matrix for AFIP-6..... | 2 |
| Table 2: AFIP-6 constituent masses ⁴ | 2 |
| Table 3: AFIP-6 constituent densities | 2 |
| Table 4. AFIP-6 Irradiation Hardware Drawing List..... | 3 |
| Table 5: Summary table of the safety analyses done for the AFIP-6 experiment..... | 9 |
| Table 6: Irradiation history for AFIP-6..... | 10 |
| Table 7: Cycle breakdown | 11 |
| Table 8: ATR Cycle 146B As-Run Lobe Powers Used for Experiment Analysis Conditions. ³ | 11 |
| Table 9: Cycle 146B, MCNP-Calculated HGRs and Neutron Flux for AFIP-6 Fuel Foil, Plate Position A, 0EFPD (BOC) Center Lobe Power at 26.0 MW. ³ | 12 |
| Table 10: Cycle 146B, MCNP-Calculated HGRs and Neutron Flux for AFIP-6 Fuel Foil, Plate Position B, 0 EFPD (BOC), Center Lobe Power at 26.0 MW. ³ | 13 |
| Table 11: Cycle 146B, MCNP-Calculated HGR, Neutron Flux, Depletion, and Fission Density for AFIP-6 Fuel Foil, Plate Position A, 18.0 EFPD (MOC1), Center Lobe Power at 25.3 MW. ³ | 14 |
| Table 12: Cycle 146B, MCNP-Calculated HGR, Neutron Flux, Depletion, and Fission Density for AFIP-6 Fuel Foil, Plate Position B, 18 EFPD (MOC1), Center Lobe Power at 25.3 MW. ³ | 15 |
| Table 13: Cycle 146B, MCNP-Calculated HGR, Neutron Flux, Depletion, and Fission Density for AFIP-6 Fuel Foil, Plate Position A, 28 EFPD (MOC2), Center Lobe Power at 26.7 MW. ³ | 16 |
| Table 14: Cycle 146B, MCNP-Calculated HGR, Neutron Flux, Depletion, and Fission Density for AFIP-6 Fuel Foil, Plate Position B, 28 EFPD (MOC2), Center Lobe Power at 26.7 MW. ³ | 17 |
| Table 15: Cycle 146B, MCNP-Calculated HGR, Neutron Flux, Depletion, and Fission Density for AFIP-6 Fuel Foil, Plate Position A, 39.2 EFPD (EOC), Center Lobe Power at 26.7MW. ³ | 18 |
| Table 16: Cycle 146B, MCNP-Calculated HGR, Neutron Flux, Depletion, and Fission Density for AFIP-6 Fuel Foil, Plate Position B, 39.2 EFPD (EOC), Center Lobe Power at 26.7 MW. ³ | 19 |
| Table 17: AFIP irradiation vehicle flow conditions for each orifice configuration ⁵ | 23 |
| Table 18: Temperature (°C) map of the east side of plate 6ZH-1 at EOC 146B (39.2 EFPD)..... | 27 |
| Table 19: Temperature (°C) map of the west side of plate 6ZH-1 at EOC 146B (39.2 EFPD)..... | 28 |
| Table 20: Temperature (°C) map of the east side of plate 6ZH-2 at EOC 146B (39.2 EFPD)..... | 29 |
| Table 21: Temperature (°C) map of the west side of plate 6ZH-2 at EOC 146B (39.2 EFPD)..... | 30 |

ACRONYMS

| | |
|-------|--|
| Al | Aluminum |
| ATR | Advanced Test Reactor |
| AFIP | <u>ATR</u> <u>Full-size plate</u> <u>In</u> center flux trap <u>Position</u> |
| CFT | Center Flux Trap |
| DAS | Data Acquisition System |
| DNBR | Departure from Nucleate Boiling Ratio |
| EFPD | Effective Full Power Days |
| FD | Fuel Development |
| FIR | Flow Instability Ratio |
| GTRI | Global Threat Reduction Initiative |
| HIP | Hot Isostatic Press |
| MCNP | Monte Carlo N-Particle |
| Mo | Molybdenum |
| RERTR | Reduced Enrichment for Research and Test Reactors |
| U | Uranium |
| U-Mo | Uranium-Molybdenum Alloy |
| U-xMo | Uranium-Molybdenum Alloy where “x” denotes the wt.% molybdenum in the alloy |
| Zr | Zirconium |

AFIP-6 Irradiation Summary Report

1. EXPERIMENT GOALS

In support of the Global Threat Reduction Initiative (GTRI) Fuel Development (FD) program (historically known as Reduced Enrichment for Research and Test Reactors (RERTR)), the Advanced Test Reactor (ATR) Full size plate In center flux trap Position (AFIP) experiment AFIP-6 was designed to evaluate the performance of monolithic uranium-molybdenum (U-Mo) fuels at a length prototypic to that of the ATR fuel plates (45 inches in length). The AFIP-6 test was the first test with plates in a swaged condition with longer fuel zones of approximately 22.5 inches in length^{1,2}.

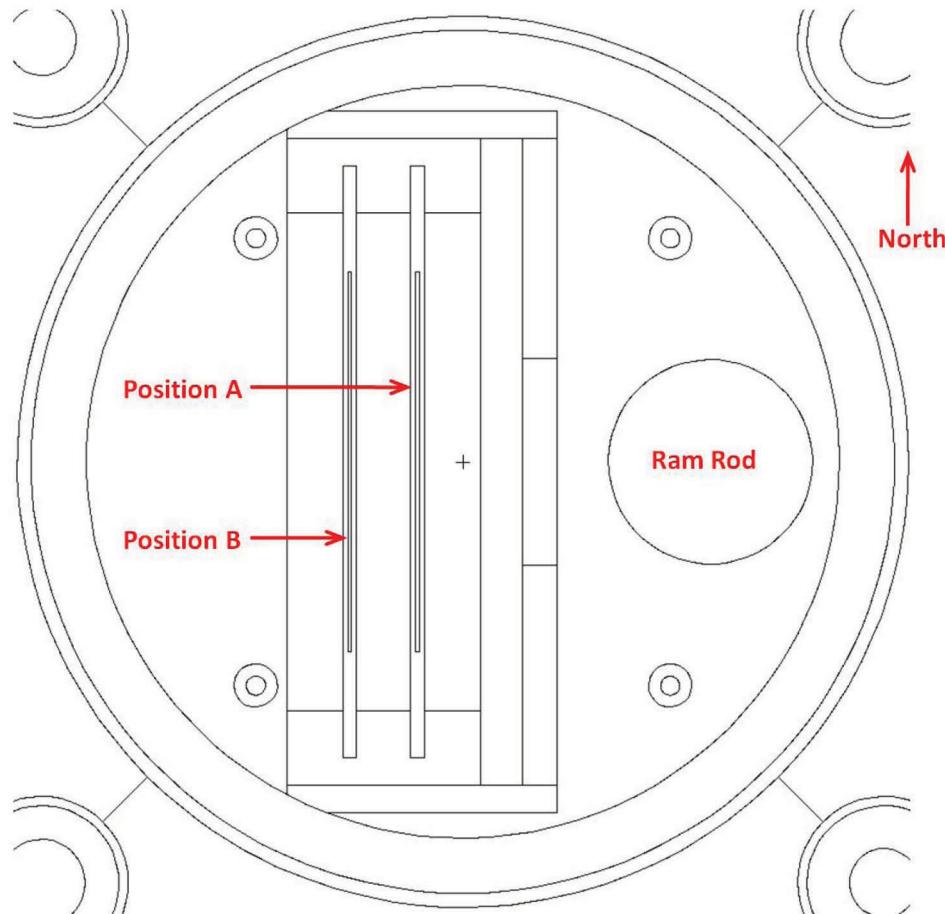


Figure 1: MCNP model X-Y view of the AFIP-6 test assembly³.

The AFIP-6 experiment was irradiated in the ATR Center Flux Trap (CFT) position. The test assembly holds 2 full length frames, designated as A and B, a ramrod and four flux monitor wires. Frame A is located closest to the ramrod and frame B is on the outer (west) location in the assembly, see Figure 1. The test assembly contained two (6ZH-1 and 6ZH-2) full sized U-10Mo fuel plates, each approximately 45 inches in length, 2.235 inches in width and 0.050 inches in thickness. The fuel zone was approximately 22.5 inches in length, 1.40 inches in width and 0.015 inches in thickness. A diffusion barrier of ~0.001 inch thick zirconium was bonded to the top and bottom surface of the fuel foil. The Experiment matrix is shown in Table 1.

Table 1: Experiment matrix for AFIP-6.

| AFIP-6 Experiment Matrix | | |
|--------------------------|----------|---------------------------------------|
| Frame ID | Position | Plate ID |
| AFIP-6A | A | U-10 Mo Zr Barrier HIP 6ZH-1 |
| AFIP-6B | B | U-10 Mo Zr Barrier HIP 6ZH-2 |

2. CONSTITUENT MASSES AND DENSITIES

The constituent masses and densities for plate 6ZH-1 and 6ZH-2 were obtained from the as-built data package⁴ plate summary sheets. Table 2 summarizes the constituent masses for both plates and Table 3 summarizes the constituent densities for both plates.

Table 2: AFIP-6 constituent masses⁴.

| Fuel Plate Location | Fuel Plate ID | Total-U (g) | U-238 (g) | U-235 (g) | Mo (g) | Zr (g) |
|---------------------|---------------|-------------|-----------|-----------|--------|--------|
| A | 6ZH-1 | 102.581 | 61.54 | 41.041 | 11.201 | 5.988 |
| B | 6ZH-2 | 100.277 | 60.158 | 40.119 | 10.949 | 5.854 |

Table 3: AFIP-6 constituent densities.

| Fuel Plate Location | Fuel Plate ID | Fuel Meat Volume (cc) | Total-U (g/cc) | U-238 (g/cc) | U-235 (g/cc) | Mo (g/cc) | Zr (g/cc) |
|---------------------|---------------|-----------------------|----------------|--------------|--------------|-----------|-----------|
| A | 6ZH-1 | 7.739 | 13.255 | 7.952 | 5.303 | 1.447 | 0.774 |
| B | 6ZH-2 | 7.837 | 12.795 | 7.676 | 5.119 | 1.397 | 0.746 |

3. EXPERIMENT HARDWARE

The experiment hardware list for AFIP-6 is that used for all of the four-plate AFIP experiments. The drawing numbers and titles are in Table 4.

Table 4. AFIP-6 Irradiation Hardware Drawing List.

| Drawing Number | Drawing Title |
|----------------|---|
| 635791 | ATR Full Size Plate in Center Flux Trap Position (AFIP) Flux Monitor Wire Holder Assembly Details |
| 635792 | ATR Full Size Plate in Center Flux Trap Position (AFIP) Plate Holder Tube Assembly and Details |
| 635793 | ATR Full Size Plate in Center Flux Trap Position (AFIP) Test Train Assembly |
| 635790 | ATR Full Size Plate in Center Flux Trap Position (AFIP) Ramrod and Ram Details |
| 636544 | ATR Full Size Plate in Center Flux Trap Position (AFIP) Holder Retriever Assembly and Details |
| 635789 | RERTR ATR Full Size Plate in Center Flux Trap Position Plate Frame Assembly and Details |
| 765639 | AFIP-6 ATR-C Fuel Plate Frame Assembly: Assembly and Details |
| 763105 | AFIP-6 ATR-C Fuel Plate Detail and Section |
| 759557 | AFIP-6 Fuel Plate Frame Assembly: Assembly and Details |
| 759558 | AFIP-6 Fuel Plate Detail and Section |

The AFIP test train assembly shown in Figure 2 shows the main components of the test assembly, which includes the flux monitor wire holders, the ram and ramrod, the frame assembly and the fuel plates. Figure 3 shows the test train assembly with the retriever attached to the top. The retriever is used to get the test train assembly out of the reactor. The flux monitor wire holders house the flux monitor wires. The ram is used to compress the rails of the fuel plate frame assemblies to minimize vibrations and hold the fuel plate frame assemblies in place. The ramrod is the last component to be inserted; it is used to push the ram against the fuel plate frame assembly. The frame assembly holds the fuel plates into place and is shown in Figure 4. Figure 5 has the specific fuel plate dimensions and nominal fuel foil dimensions. Figure 6 is a radial cross section of the test train assembly and shows the locations of all the components.

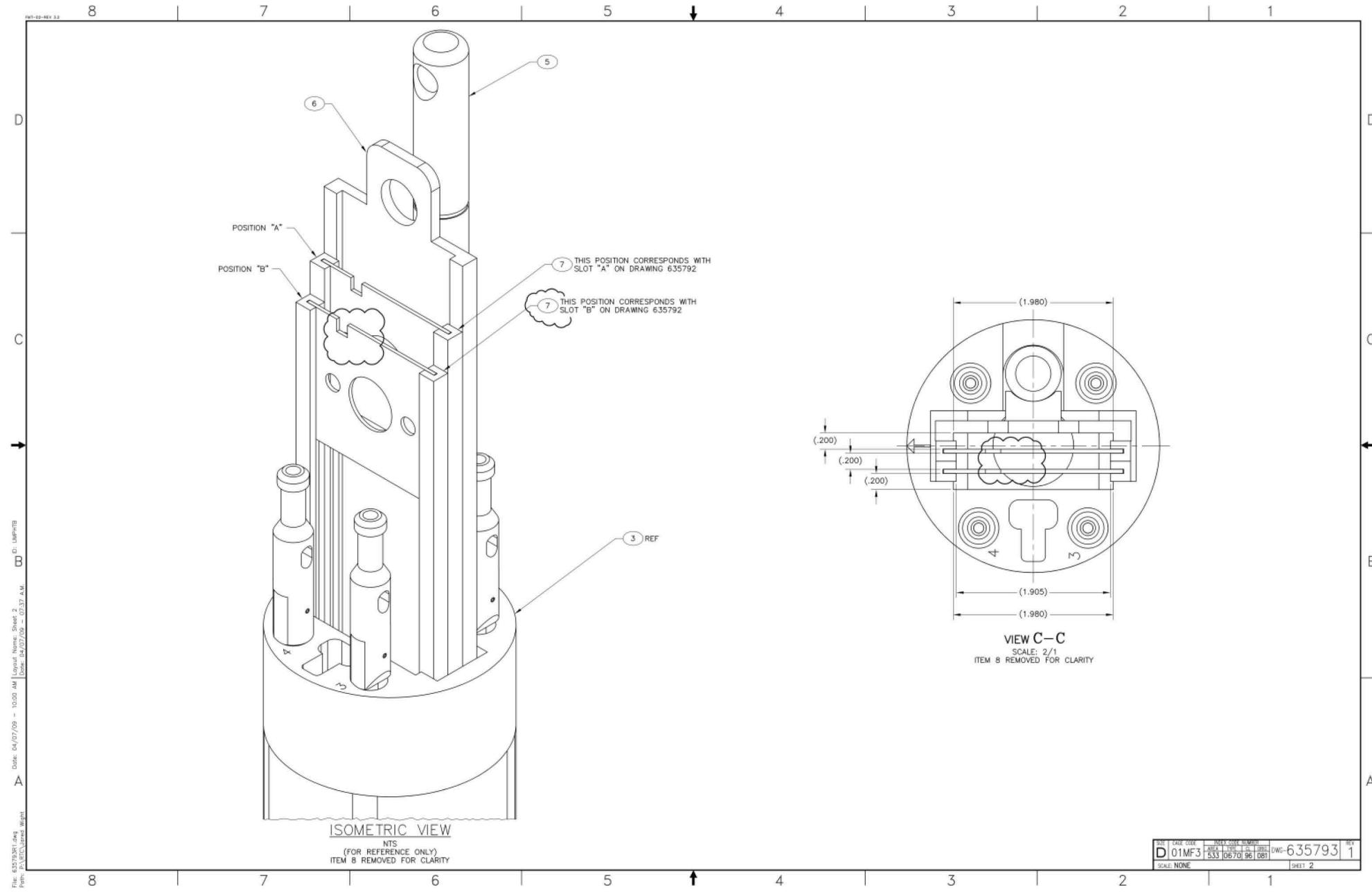




Figure 3: Isometric view of the AFIP-6 Test Train Assembly.

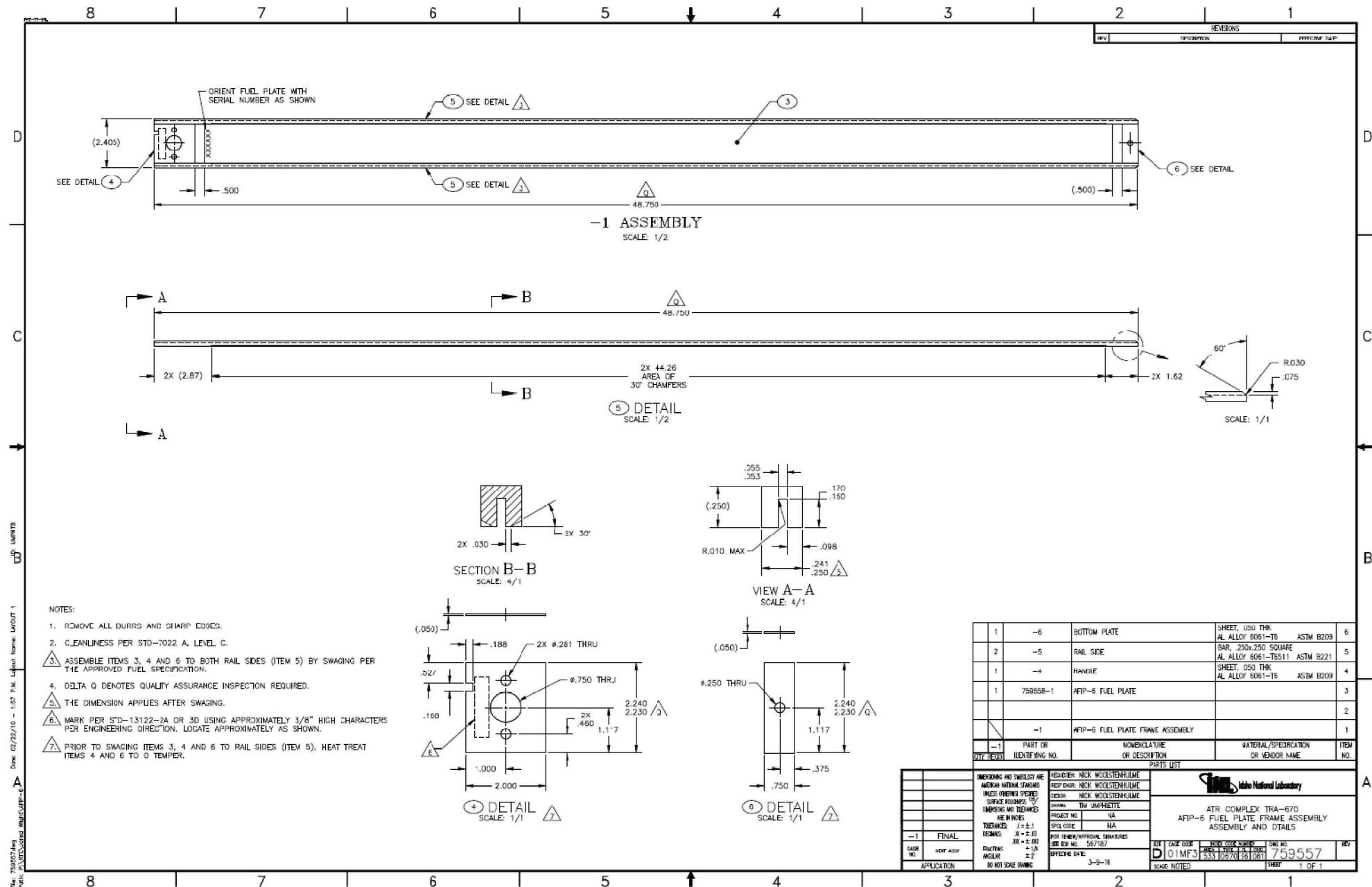


Figure 4: DWG-759557 REV 0 AFIP-6 Frame Assembly.

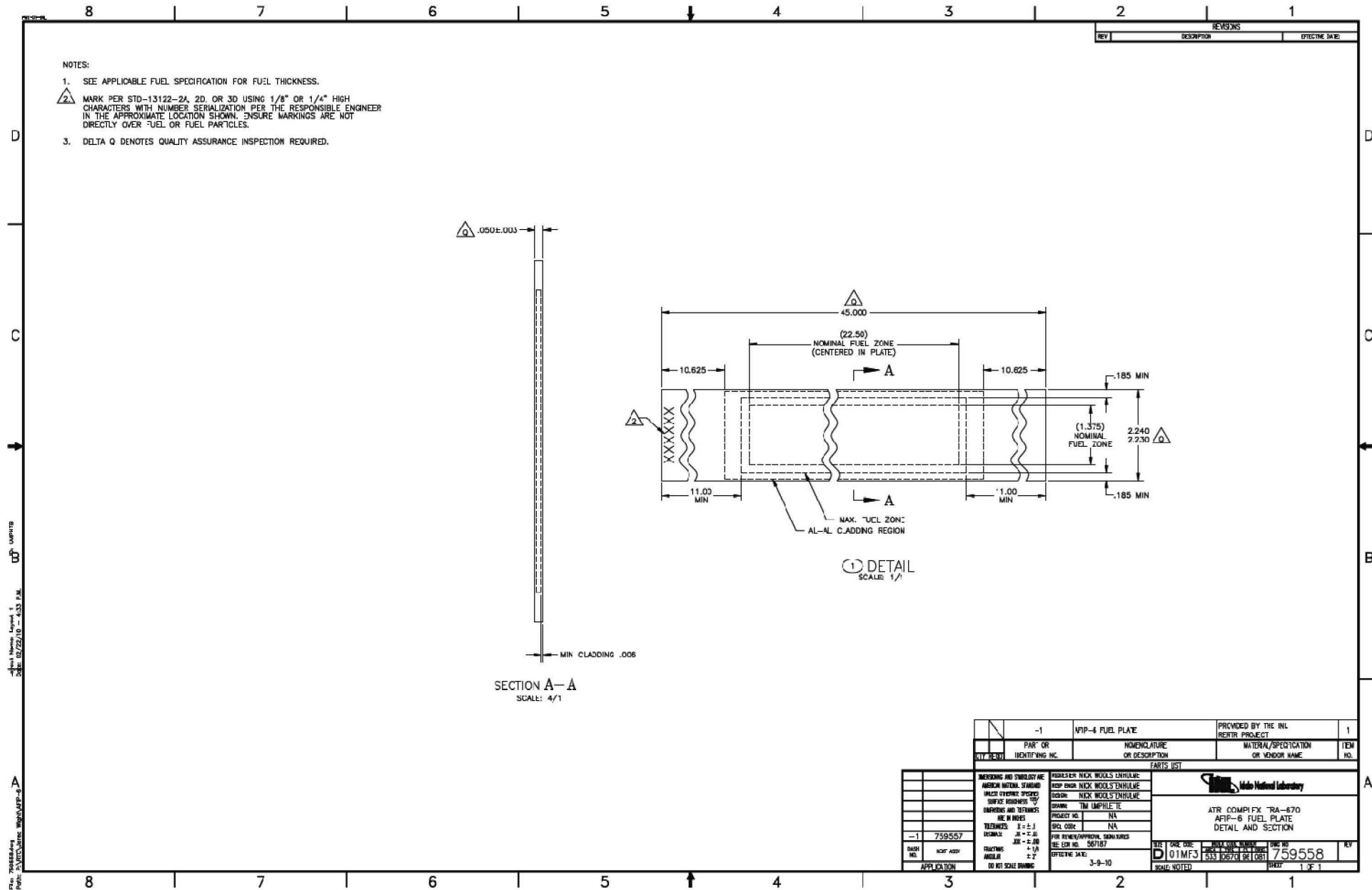


Figure 5: DWG-759558 REV 0 AFIP-6 Fuel Plate.

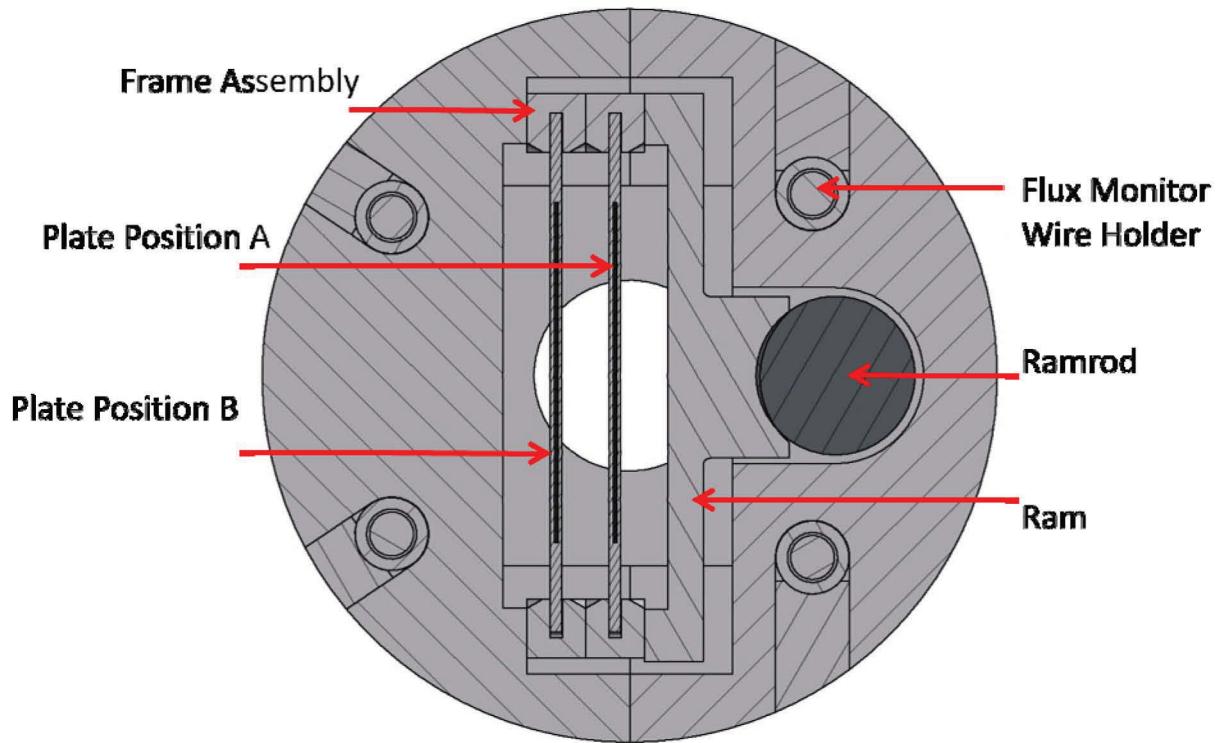


Figure 6: Radial Cross Section of the AFIP Test Train Assembly.

4. SAFETY ANALYSIS

The safety analysis that was performed on the AFIP-6 experiment includes thermal/hydraulic analysis, physics analysis, and structural analysis. The following table (Table 5) summarizes the safety analyses performed on the AFIP-6 experiment.

Table 5: Summary table of the safety analyses done for the AFIP-6 experiment.

| ECAR Number | Description |
|------------------|---|
| ECAR-838, Rev. 1 | ATR Physics Analysis of the AFIP-6 Experiment in the Center Flux Trap |
| ECAR-975 | Results of Two-Fuel-Plate AFIP-6 Reactivity Measurements in the ATRC |
| ECAR-971 | Analysis of the Effects of the ATR Full-Size Plate in Center Flux Trap Position 6 (AFIP-6) Two-Fueled Plate Test on the ATRC Axial Flux Profile |
| ECAR-59, Rev. 2 | Temperature Reactivity Coefficients for the AFIP Experiment in the Center Flux Trap of ATR |
| ECAR-833, Rev.1 | AFIP-6 Thermal Evaluation |
| ECAR-858 | AFIP-6 Plate Frame Assembly Structural Evaluation |
| ECAR-121 | Total Flow Evaluations for AFIP and Backups |
| ECAR-126 | RELAP Analysis for AFIP-2 Flow Restrictor |
| ECAR-981 | AFIP Half-Inch Backup Thermal Analysis |

5. IRRADIATION HISTORY

The AFIP-6 test assembly was irradiated during cycle 146B in the ATR Center Flux Trap (CFT). Cycle 146B ran for 39.2 effective full power days (EFPDs) with an average center lobe power of 26.0 MW (total core power of 116.0 MW). There were no mid-cycle SCRAMs during cycle 146B. This information is summarized in Table 6.

Table 6: Irradiation history for AFIP-6.

| ATR CYCLE | AFIP Test ID | AFIP-6 Frames Irradiated | Dates Irradiated | Cycle EFPDs | Mid-Cycle Scram Decay Days | Post-Cycle Decay Days | Center Flux Trap Power (MW) | Total Core Power (MW) |
|-----------|--------------|--------------------------|-----------------------|-------------|----------------------------|-----------------------|-----------------------------|-----------------------|
| 146B | AFIP-6 | A,B | 4/21/2010 – 5/30/2010 | 39.2 | 0 | 20 | 26.0 | 116.0 |

The power history for each cycle is obtained as an ATR Surveillance Report from the ATR Data Acquisition System (DAS). The plots of each lobe power on an hourly basis are shown in Figure 7 for Cycle 146B.

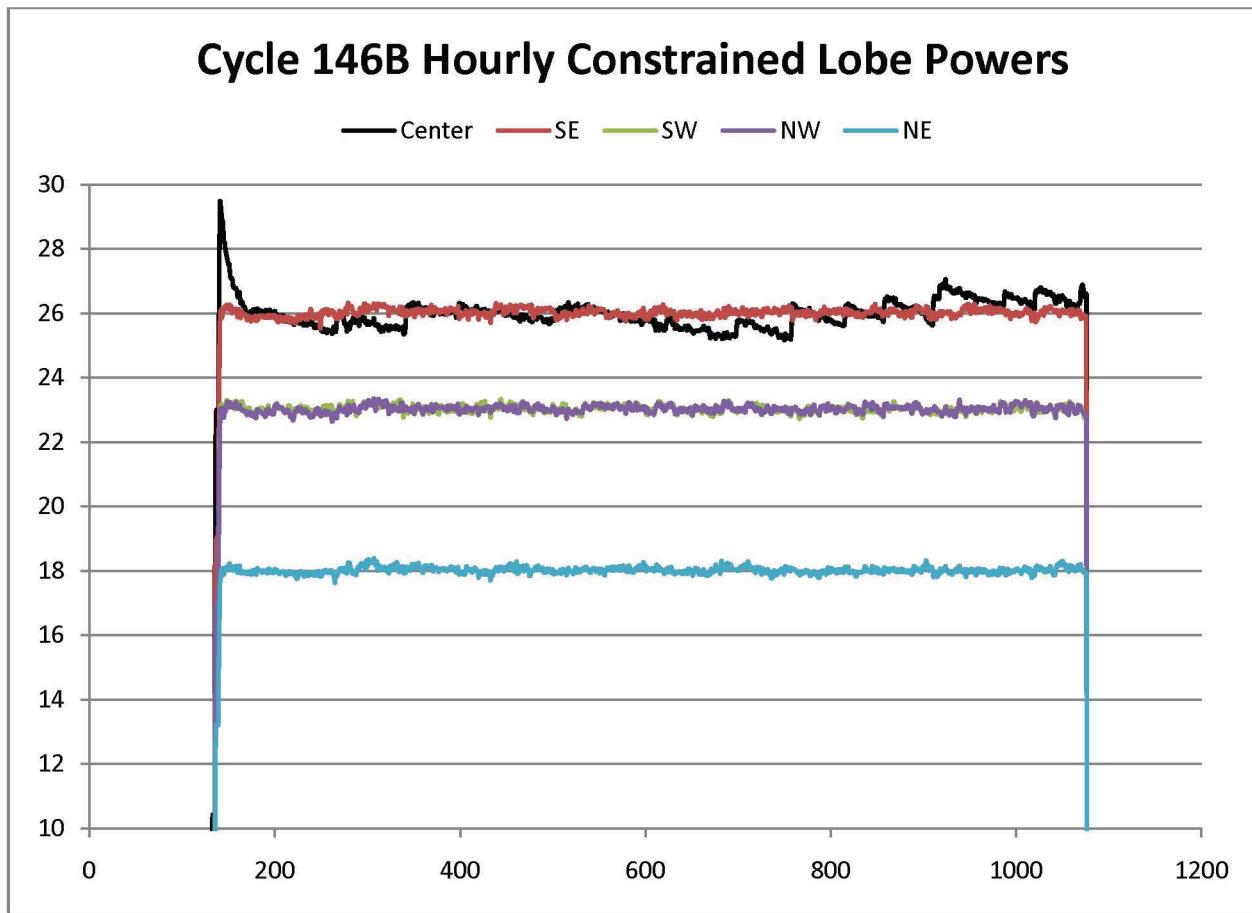


Figure 7: Hourly constrained lobe power history for Cycle 146B.

6. AS-RUN NUCLEAR ANALYSIS

6.1 Neutronics

The as-run calculations were performed using the irradiation history in Table 6, the Monte Carlo N-Particle (MCNP) code, ORIGEN2.2 and MCWO³. The calculated as-run fission heat rates, fission densities, and as-run U-235 burnup results for the fueled plates reported have an uncertainty band (1σ) of 2.5% ³. The time intervals used to calculate the average plate power and burnup is shown in Table 7. The ATR lobe powers for the time intervals used are tabulated in Table 8.

Table 7: Cycle breakdown.

| Time Interval | 146B (days) |
|---------------|-------------|
| BOC | 0.0 |
| MOC 1 | 18.0 |
| MOC 2 | 10.0 |
| EOC | 11.2 |
| Total EFPDs | 39.2 |
| Cumulative | 39.2 |

Table 8: ATR Cycle 146B As-Run Lobe Powers Used for Experiment Analysis Conditions.³

| Interval | Date & Time | NW (MW) | NE (MW) | Center (MW) | SW (MW) | SE (MW) | Total Core (MW) |
|----------|---|---------|---------|-------------|---------|---------|-----------------|
| BOC | 5/6/2010 1600 | 22.92 | 17.91 | 25.96 | 23.05 | 25.86 | 115.70 |
| MOC | Average of 5/13/2010 2300 through 5/14/2010 1300 | 23.11 | 18.11 | 25.30 | 23.12 | 26.06 | 115.70 |
| EOC | 5/24/2010 0800 | 22.82 | 18.00 | 26.70 | 22.99 | 25.98 | 116.49 |

The MCNP-calculated average plate power and burnup for the time intervals for each cycle are shown in Table 9 through Table 16. The plots of the fission power density and fission density as a function of the ATR Cycle time interval are in Appendix A.

Table 9: Cycle 146B, MCNP-Calculated HGRs and Neutron Flux for AFIP-6 Fuel Foil, Plate Position A, 0EFPD (BOC) Center Lobe Power at 26.0 MW.³

| Cell | MCNP Cell Centroid Elevation ^(a) (inches) | Fission Power Density (W/cc) | Fission Heat Rate (W/g) | Surface Heat Flux (W/cm ²) | Neutron Flux (n/cm ² sec) |
|------|--|------------------------------|-------------------------|--|--------------------------------------|
| A-1 | 11.0 | 29642.09 | 1723.40 | 489.39 | 1.10E+15 |
| A-2 | 10.5 | 27216.85 | 1582.40 | 449.35 | 1.11E+15 |
| A-3 | 10.0 | 27703.85 | 1610.71 | 457.39 | 1.13E+15 |
| A-4 | 9.5 | 27483.19 | 1597.88 | 453.75 | 1.15E+15 |
| A-5 | 9.0 | 27762.69 | 1613.91 | 458.36 | 1.16E+15 |
| A-6 | 8.5 | 28420.81 | 1652.40 | 469.23 | 1.18E+15 |
| A-7 | 8.0 | 28574.69 | 1661.34 | 471.77 | 1.20E+15 |
| A-8 | 7.5 | 28816.42 | 1675.16 | 475.76 | 1.21E+15 |
| A-9 | 7.0 | 29302.69 | 1703.67 | 483.79 | 1.22E+15 |
| A-10 | 6.5 | 29385.53 | 1708.48 | 485.16 | 1.23E+15 |
| A-11 | 6.0 | 29848.18 | 1735.38 | 492.79 | 1.25E+15 |
| A-12 | 5.5 | 30079.05 | 1748.56 | 496.61 | 1.25E+15 |
| A-13 | 5.0 | 30333.63 | 1763.36 | 500.81 | 1.26E+15 |
| A-14 | 4.5 | 30166.67 | 1753.66 | 498.05 | 1.26E+15 |
| A-15 | 4.0 | 30572.65 | 1777.26 | 504.75 | 1.27E+15 |
| A-16 | 3.5 | 30632.15 | 1780.72 | 505.74 | 1.27E+15 |
| A-17 | 3.0 | 31156.63 | 1811.21 | 514.40 | 1.29E+15 |
| A-18 | 2.5 | 31342.68 | 1822.02 | 517.47 | 1.29E+15 |
| A-19 | 2.0 | 31205.09 | 1814.02 | 515.20 | 1.29E+15 |
| A-20 | 1.5 | 31364.77 | 1823.31 | 517.83 | 1.31E+15 |
| A-21 | 1.0 | 31494.97 | 1831.13 | 519.98 | 1.30E+15 |
| A-22 | 0.5 | 31471.12 | 1829.74 | 519.59 | 1.30E+15 |
| A-23 | 0.0 | 31271.37 | 1817.88 | 516.29 | 1.29E+15 |
| A-24 | -0.5 | 31843.31 | 1851.12 | 525.73 | 1.30E+15 |
| A-25 | -1.0 | 31310.96 | 1820.43 | 516.94 | 1.30E+15 |
| A-26 | -1.5 | 31651.61 | 1840.24 | 522.57 | 1.30E+15 |
| A-27 | -2.0 | 31280.16 | 1818.39 | 516.44 | 1.30E+15 |
| A-28 | -2.5 | 31562.86 | 1834.82 | 521.10 | 1.30E+15 |
| A-29 | -3.0 | 31233.64 | 1815.93 | 515.67 | 1.30E+15 |
| A-30 | -3.5 | 31360.75 | 1823.07 | 517.77 | 1.29E+15 |
| A-31 | -4.0 | 31243.93 | 1816.53 | 515.84 | 1.30E+15 |
| A-32 | -4.5 | 31008.00 | 1802.57 | 511.94 | 1.28E+15 |
| A-33 | -5.0 | 30907.83 | 1796.74 | 510.29 | 1.29E+15 |
| A-34 | -5.5 | 30675.34 | 1783.23 | 506.45 | 1.28E+15 |
| A-35 | -6.0 | 30345.99 | 1764.33 | 501.01 | 1.26E+15 |
| A-36 | -6.5 | 29858.98 | 1736.01 | 492.97 | 1.26E+15 |
| A-37 | -7.0 | 30288.50 | 1760.98 | 500.06 | 1.25E+15 |
| A-38 | -7.5 | 30052.18 | 1747.00 | 496.16 | 1.24E+15 |
| A-39 | -8.0 | 29518.16 | 1715.96 | 487.34 | 1.23E+15 |
| A-40 | -8.5 | 29584.94 | 1719.84 | 488.45 | 1.22E+15 |
| A-41 | -9.0 | 28976.34 | 1684.69 | 478.40 | 1.21E+15 |
| A-42 | -9.5 | 29030.08 | 1687.58 | 479.29 | 1.19E+15 |
| A-43 | -10.0 | 28567.86 | 1660.71 | 471.66 | 1.19E+15 |
| A-44 | -10.5 | 28711.25 | 1669.28 | 474.02 | 1.17E+15 |
| A-45 | -11.0 | 31319.08 | 1820.65 | 517.08 | 1.15E+15 |
| MAX | NA | 31843.31 | 1851.12 | 525.73 | 1.31E+15 |
| MIN | NA | 27216.85 | 1582.40 | 449.35 | 1.10E+15 |
| AVG | NA | 30123.99 | 1751.28 | 497.35 | 1.24E+15 |

(a) Elevations for MCNP cells are reported at cell centroids relative to the modeled core axial midplane at 24.0 inches.

Table 10: Cycle 146B, MCNP-Calculated HGRs and Neutron Flux for AFIP-6 Fuel Foil, Plate Position B, 0 EFPD (BOC), Center Lobe Power at 26.0 MW.³

| Cell | MCNP Cell Centroid Elevation ^(a) (inches) | Fission Power Density (W/cc) | Fission Heat Rate (W/g) | Surface Heat Flux (W/cm ²) | Neutron Flux (n/cm ² sec) |
|------|---|---------------------------------------|----------------------------------|---|--|
| B-1 | 11.0 | 29031.84 | 1687.69 | 479.32 | 1.09E+15 |
| B-2 | 10.5 | 26260.91 | 1526.82 | 433.57 | 1.10E+15 |
| B-3 | 10.0 | 26565.09 | 1544.29 | 438.59 | 1.12E+15 |
| B-4 | 9.5 | 26842.52 | 1560.42 | 443.17 | 1.15E+15 |
| B-5 | 9.0 | 27130.99 | 1577.41 | 447.93 | 1.17E+15 |
| B-6 | 8.5 | 27586.12 | 1603.87 | 455.45 | 1.18E+15 |
| B-7 | 8.0 | 27874.05 | 1620.61 | 460.20 | 1.19E+15 |
| B-8 | 7.5 | 28297.46 | 1645.00 | 467.19 | 1.20E+15 |
| B-9 | 7.0 | 28560.83 | 1660.31 | 471.54 | 1.22E+15 |
| B-10 | 6.5 | 28914.34 | 1680.86 | 477.38 | 1.23E+15 |
| B-11 | 6.0 | 29126.71 | 1693.44 | 480.88 | 1.23E+15 |
| B-12 | 5.5 | 29472.64 | 1713.55 | 486.59 | 1.25E+15 |
| B-13 | 5.0 | 29594.89 | 1720.66 | 488.61 | 1.26E+15 |
| B-14 | 4.5 | 30103.40 | 1749.98 | 497.01 | 1.26E+15 |
| B-15 | 4.0 | 29829.61 | 1734.30 | 492.49 | 1.26E+15 |
| B-16 | 3.5 | 29750.90 | 1729.49 | 491.19 | 1.27E+15 |
| B-17 | 3.0 | 30056.04 | 1747.47 | 496.23 | 1.28E+15 |
| B-18 | 2.5 | 30588.72 | 1778.19 | 505.02 | 1.28E+15 |
| B-19 | 2.0 | 30587.71 | 1778.13 | 505.00 | 1.28E+15 |
| B-20 | 1.5 | 30496.57 | 1772.83 | 503.50 | 1.29E+15 |
| B-21 | 1.0 | 30564.87 | 1776.80 | 504.63 | 1.29E+15 |
| B-22 | 0.5 | 30627.63 | 1780.45 | 505.66 | 1.29E+15 |
| B-23 | 0.0 | 30505.11 | 1773.33 | 503.64 | 1.30E+15 |
| B-24 | -0.5 | 30617.09 | 1779.84 | 505.49 | 1.29E+15 |
| B-25 | -1.0 | 30498.36 | 1773.19 | 503.53 | 1.29E+15 |
| B-26 | -1.5 | 30816.67 | 1791.69 | 508.78 | 1.29E+15 |
| B-27 | -2.0 | 30700.69 | 1784.70 | 506.87 | 1.29E+15 |
| B-28 | -2.5 | 30789.07 | 1789.84 | 508.33 | 1.29E+15 |
| B-29 | -3.0 | 30529.46 | 1774.75 | 504.04 | 1.29E+15 |
| B-30 | -3.5 | 30399.41 | 1767.19 | 501.89 | 1.29E+15 |
| B-31 | -4.0 | 30543.05 | 1775.78 | 504.27 | 1.28E+15 |
| B-32 | -4.5 | 30470.46 | 1771.32 | 503.07 | 1.28E+15 |
| B-33 | -5.0 | 30199.63 | 1755.82 | 498.60 | 1.28E+15 |
| B-34 | -5.5 | 29714.24 | 1727.36 | 490.58 | 1.27E+15 |
| B-35 | -6.0 | 29513.05 | 1715.90 | 487.26 | 1.26E+15 |
| B-36 | -6.5 | 29405.68 | 1709.42 | 485.49 | 1.26E+15 |
| B-37 | -7.0 | 29411.96 | 1709.78 | 485.59 | 1.25E+15 |
| B-38 | -7.5 | 29168.92 | 1695.66 | 481.58 | 1.23E+15 |
| B-39 | -8.0 | 29006.98 | 1686.24 | 478.91 | 1.22E+15 |
| B-40 | -8.5 | 28323.57 | 1646.51 | 467.62 | 1.22E+15 |
| B-41 | -9.0 | 28280.14 | 1643.99 | 466.91 | 1.21E+15 |
| B-42 | -9.5 | 27958.02 | 1625.26 | 461.59 | 1.19E+15 |
| B-43 | -10.0 | 27743.86 | 1612.81 | 458.05 | 1.17E+15 |
| B-44 | -10.5 | 27943.34 | 1624.64 | 461.34 | 1.16E+15 |
| B-45 | -11.0 | 30666.80 | 1782.73 | 506.31 | 1.15E+15 |
| MAX | NA | 30816.67 | 1791.69 | 508.78 | 1.30E+15 |
| MIN | NA | 26260.91 | 1526.82 | 433.57 | 1.09E+15 |
| AVG | NA | 29357.10 | 1706.67 | 484.69 | 1.24E+15 |

(a) Elevations for MCNP cells are reported at cell centroids relative to the modeled core axial midplane at 24.0 inches.

Table 11: Cycle 146B, MCNP-Calculated HGR, Neutron Flux, Depletion, and Fission Density for AFIP-6 Fuel Foil, Plate Position A, 18.0 EFPD (MOC1), Center Lobe Power at 25.3 MW.³

| Cell | MCNP Cell Centroid Elevation ^(a) (inches) | Fission Power Density (W/cc) | Fission Heat Rate (W/g) | Surface Heat Flux (W/cm ²) | Neutron Flux (n/cm ² sec) | % Depletion U-235 (%) | Fission Density (fission/cc) |
|------|---|---------------------------------|----------------------------|---|---|--------------------------|---------------------------------|
| A-1 | 11.0 | 27607.65 | 1655.73 | 455.80 | 1.07E+15 | 10.96% | 1.53E+21 |
| A-2 | 10.5 | 25077.74 | 1500.62 | 414.03 | 1.07E+15 | 10.21% | 1.41E+21 |
| A-3 | 10.0 | 25551.67 | 1529.60 | 421.86 | 1.09E+15 | 10.33% | 1.43E+21 |
| A-4 | 9.5 | 25444.96 | 1522.73 | 420.10 | 1.11E+15 | 10.27% | 1.42E+21 |
| A-5 | 9.0 | 25572.75 | 1531.01 | 422.21 | 1.13E+15 | 10.40% | 1.43E+21 |
| A-6 | 8.5 | 25802.61 | 1545.85 | 426.00 | 1.13E+15 | 10.59% | 1.47E+21 |
| A-7 | 8.0 | 26316.84 | 1576.72 | 434.49 | 1.16E+15 | 10.65% | 1.48E+21 |
| A-8 | 7.5 | 26408.37 | 1582.79 | 436.00 | 1.16E+15 | 10.78% | 1.49E+21 |
| A-9 | 7.0 | 26295.91 | 1576.69 | 434.15 | 1.17E+15 | 10.90% | 1.51E+21 |
| A-10 | 6.5 | 26674.09 | 1599.53 | 440.39 | 1.17E+15 | 10.96% | 1.52E+21 |
| A-11 | 6.0 | 27173.63 | 1630.18 | 448.64 | 1.19E+15 | 11.09% | 1.54E+21 |
| A-12 | 5.5 | 27435.69 | 1646.32 | 452.96 | 1.19E+15 | 11.22% | 1.55E+21 |
| A-13 | 5.0 | 27529.99 | 1652.47 | 454.52 | 1.20E+15 | 11.28% | 1.57E+21 |
| A-14 | 4.5 | 27515.83 | 1651.41 | 454.29 | 1.20E+15 | 11.22% | 1.56E+21 |
| A-15 | 4.0 | 27641.83 | 1659.52 | 456.37 | 1.21E+15 | 11.34% | 1.58E+21 |
| A-16 | 3.5 | 27967.57 | 1679.13 | 461.74 | 1.22E+15 | 11.34% | 1.58E+21 |
| A-17 | 3.0 | 27711.89 | 1664.73 | 457.52 | 1.22E+15 | 11.53% | 1.61E+21 |
| A-18 | 2.5 | 28536.13 | 1714.64 | 471.13 | 1.23E+15 | 11.59% | 1.62E+21 |
| A-19 | 2.0 | 28303.20 | 1700.30 | 467.29 | 1.23E+15 | 11.59% | 1.61E+21 |
| A-20 | 1.5 | 28216.21 | 1695.21 | 465.85 | 1.23E+15 | 11.59% | 1.62E+21 |
| A-21 | 1.0 | 28485.30 | 1711.88 | 470.29 | 1.23E+15 | 11.66% | 1.63E+21 |
| A-22 | 0.5 | 28627.88 | 1720.20 | 472.65 | 1.24E+15 | 11.66% | 1.63E+21 |
| A-23 | 0.0 | 28229.01 | 1695.93 | 466.06 | 1.23E+15 | 11.59% | 1.62E+21 |
| A-24 | -0.5 | 28788.81 | 1730.44 | 475.30 | 1.24E+15 | 11.78% | 1.65E+21 |
| A-25 | -1.0 | 28440.84 | 1708.74 | 469.56 | 1.23E+15 | 11.59% | 1.62E+21 |
| A-26 | -1.5 | 28350.79 | 1704.06 | 468.07 | 1.23E+15 | 11.72% | 1.64E+21 |
| A-27 | -2.0 | 28285.43 | 1699.20 | 466.99 | 1.23E+15 | 11.59% | 1.62E+21 |
| A-28 | -2.5 | 28583.62 | 1717.83 | 471.92 | 1.23E+15 | 11.72% | 1.63E+21 |
| A-29 | -3.0 | 28039.65 | 1684.55 | 462.93 | 1.23E+15 | 11.59% | 1.61E+21 |
| A-30 | -3.5 | 28401.33 | 1706.49 | 468.91 | 1.23E+15 | 11.59% | 1.62E+21 |
| A-31 | -4.0 | 27954.59 | 1679.56 | 461.53 | 1.23E+15 | 11.59% | 1.61E+21 |
| A-32 | -4.5 | 27883.56 | 1674.95 | 460.36 | 1.22E+15 | 11.53% | 1.60E+21 |
| A-33 | -5.0 | 27990.81 | 1681.10 | 462.13 | 1.22E+15 | 11.47% | 1.60E+21 |
| A-34 | -5.5 | 27971.63 | 1679.49 | 461.81 | 1.22E+15 | 11.41% | 1.59E+21 |
| A-35 | -6.0 | 27671.71 | 1660.94 | 456.86 | 1.21E+15 | 11.28% | 1.57E+21 |
| A-36 | -6.5 | 27190.63 | 1631.43 | 448.92 | 1.20E+15 | 11.15% | 1.54E+21 |
| A-37 | -7.0 | 27035.91 | 1622.54 | 446.36 | 1.19E+15 | 11.22% | 1.57E+21 |
| A-38 | -7.5 | 27241.98 | 1634.57 | 449.77 | 1.19E+15 | 11.15% | 1.55E+21 |
| A-39 | -8.0 | 26541.55 | 1591.78 | 438.20 | 1.17E+15 | 10.96% | 1.53E+21 |
| A-40 | -8.5 | 26746.34 | 1604.26 | 441.58 | 1.16E+15 | 11.03% | 1.53E+21 |
| A-41 | -9.0 | 26360.94 | 1580.03 | 435.22 | 1.16E+15 | 10.78% | 1.50E+21 |
| A-42 | -9.5 | 26010.06 | 1559.23 | 429.43 | 1.14E+15 | 10.84% | 1.50E+21 |
| A-43 | -10.0 | 25970.49 | 1555.85 | 428.77 | 1.14E+15 | 10.65% | 1.48E+21 |
| A-44 | -10.5 | 25977.64 | 1556.75 | 428.89 | 1.11E+15 | 10.71% | 1.48E+21 |
| A-45 | -11.0 | 28573.03 | 1716.77 | 471.74 | 1.11E+15 | 11.59% | 1.62E+21 |
| MAX | NA | 28788.81 | 1730.44 | 475.30 | 1.24E+15 | 11.78% | 1.65E+21 |
| MIN | NA | 25077.74 | 1500.62 | 414.03 | 1.07E+15 | 10.21% | 1.41E+21 |
| AVG | NA | 27336.40 | 1640.53 | 451.32 | 1.18E+15 | 11.19% | 1.56E+21 |

(a) Elevations for MCNP cells are reported at cell centroids relative to the modeled core axial midplane at 24.0 inches.

Table 12: Cycle 146B, MCNP-Calculated HGR, Neutron Flux, Depletion, and Fission Density for AFIP-6 Fuel Foil, Plate Position B, 18 EFPD (MOC1), Center Lobe Power at 25.3 MW.³

| Cell | MCNP Cell Centroid Elevation ^(a) (inches) | Fission Power Density (W/cc) | Fission Heat Rate (W/g) | Surface Heat Flux (W/cm ²) | Neutron Flux (n/cm ² sec) | % Depletion U-235 (%) | Fission Density (fission/cc) |
|------|---|---------------------------------|----------------------------|---|---|--------------------------|---------------------------------|
| B-1 | 11.0 | 26672.95 | 1598.85 | 440.37 | 1.06E+15 | 10.78% | 1.50E+21 |
| B-2 | 10.5 | 24554.67 | 1467.74 | 405.40 | 1.07E+15 | 9.83% | 1.36E+21 |
| B-3 | 10.0 | 24461.46 | 1462.68 | 403.86 | 1.08E+15 | 9.96% | 1.37E+21 |
| B-4 | 9.5 | 24621.15 | 1472.64 | 406.50 | 1.10E+15 | 10.02% | 1.39E+21 |
| B-5 | 9.0 | 25097.43 | 1501.57 | 414.36 | 1.12E+15 | 10.14% | 1.40E+21 |
| B-6 | 8.5 | 25196.68 | 1507.98 | 416.00 | 1.13E+15 | 10.27% | 1.43E+21 |
| B-7 | 8.0 | 25415.95 | 1521.67 | 419.62 | 1.14E+15 | 10.40% | 1.44E+21 |
| B-8 | 7.5 | 25867.94 | 1549.36 | 427.08 | 1.16E+15 | 10.59% | 1.46E+21 |
| B-9 | 7.0 | 25945.85 | 1554.60 | 428.37 | 1.17E+15 | 10.65% | 1.48E+21 |
| B-10 | 6.5 | 26246.19 | 1573.12 | 433.32 | 1.17E+15 | 10.78% | 1.49E+21 |
| B-11 | 6.0 | 26370.42 | 1580.91 | 435.38 | 1.18E+15 | 10.84% | 1.51E+21 |
| B-12 | 5.5 | 26514.03 | 1590.12 | 437.75 | 1.19E+15 | 10.96% | 1.52E+21 |
| B-13 | 5.0 | 26696.00 | 1601.09 | 440.75 | 1.19E+15 | 11.03% | 1.53E+21 |
| B-14 | 4.5 | 26979.65 | 1619.03 | 445.43 | 1.20E+15 | 11.22% | 1.56E+21 |
| B-15 | 4.0 | 27017.93 | 1620.80 | 446.07 | 1.20E+15 | 11.09% | 1.54E+21 |
| B-16 | 3.5 | 26897.46 | 1613.57 | 444.08 | 1.21E+15 | 11.09% | 1.54E+21 |
| B-17 | 3.0 | 27092.16 | 1625.70 | 447.29 | 1.22E+15 | 11.15% | 1.55E+21 |
| B-18 | 2.5 | 27575.14 | 1655.67 | 455.27 | 1.22E+15 | 11.34% | 1.58E+21 |
| B-19 | 2.0 | 27716.43 | 1664.20 | 457.60 | 1.22E+15 | 11.34% | 1.58E+21 |
| B-20 | 1.5 | 27574.22 | 1655.18 | 455.25 | 1.23E+15 | 11.34% | 1.58E+21 |
| B-21 | 1.0 | 27488.55 | 1650.51 | 453.84 | 1.22E+15 | 11.34% | 1.58E+21 |
| B-22 | 0.5 | 27425.78 | 1646.52 | 452.80 | 1.23E+15 | 11.34% | 1.58E+21 |
| B-23 | 0.0 | 27611.86 | 1657.40 | 455.87 | 1.22E+15 | 11.34% | 1.58E+21 |
| B-24 | -0.5 | 27485.46 | 1650.02 | 453.78 | 1.23E+15 | 11.34% | 1.58E+21 |
| B-25 | -1.0 | 27277.32 | 1637.40 | 450.35 | 1.22E+15 | 11.34% | 1.58E+21 |
| B-26 | -1.5 | 27611.57 | 1658.05 | 455.87 | 1.23E+15 | 11.41% | 1.59E+21 |
| B-27 | -2.0 | 27652.76 | 1660.31 | 456.55 | 1.23E+15 | 11.41% | 1.59E+21 |
| B-28 | -2.5 | 27485.90 | 1650.57 | 453.79 | 1.22E+15 | 11.41% | 1.59E+21 |
| B-29 | -3.0 | 27419.32 | 1646.05 | 452.69 | 1.22E+15 | 11.34% | 1.58E+21 |
| B-30 | -3.5 | 27276.75 | 1637.20 | 450.34 | 1.22E+15 | 11.28% | 1.57E+21 |
| B-31 | -4.0 | 27374.31 | 1643.34 | 451.95 | 1.21E+15 | 11.34% | 1.58E+21 |
| B-32 | -4.5 | 27362.93 | 1642.57 | 451.76 | 1.22E+15 | 11.34% | 1.57E+21 |
| B-33 | -5.0 | 27353.19 | 1641.77 | 451.60 | 1.21E+15 | 11.22% | 1.56E+21 |
| B-34 | -5.5 | 27254.44 | 1634.82 | 449.97 | 1.20E+15 | 11.03% | 1.54E+21 |
| B-35 | -6.0 | 27228.29 | 1633.00 | 449.54 | 1.20E+15 | 10.96% | 1.53E+21 |
| B-36 | -6.5 | 26801.32 | 1607.15 | 442.49 | 1.20E+15 | 10.96% | 1.52E+21 |
| B-37 | -7.0 | 26615.63 | 1595.99 | 439.42 | 1.19E+15 | 10.96% | 1.52E+21 |
| B-38 | -7.5 | 26280.82 | 1575.51 | 433.90 | 1.18E+15 | 10.84% | 1.51E+21 |
| B-39 | -8.0 | 26260.99 | 1574.20 | 433.57 | 1.17E+15 | 10.84% | 1.50E+21 |
| B-40 | -8.5 | 25854.84 | 1548.58 | 426.86 | 1.16E+15 | 10.59% | 1.46E+21 |
| B-41 | -9.0 | 26131.19 | 1564.98 | 431.43 | 1.16E+15 | 10.52% | 1.46E+21 |
| B-42 | -9.5 | 25730.99 | 1540.68 | 424.82 | 1.14E+15 | 10.46% | 1.45E+21 |
| B-43 | -10.0 | 25553.73 | 1529.73 | 421.89 | 1.13E+15 | 10.40% | 1.43E+21 |
| B-44 | -10.5 | 25571.57 | 1531.14 | 422.19 | 1.11E+15 | 10.46% | 1.44E+21 |
| B-45 | -11.0 | 27776.25 | 1667.60 | 458.59 | 1.11E+15 | 11.34% | 1.59E+21 |
| MAX | NA | 27776.25 | 1667.60 | 458.59 | 1.23E+15 | 11.41% | 1.59E+21 |
| MIN | NA | 24461.46 | 1462.68 | 403.86 | 1.06E+15 | 9.83% | 1.36E+21 |
| AVG | NA | 26631.10 | 1596.92 | 439.68 | 1.18E+15 | 10.92% | 1.52E+21 |

(a) Elevations for MCNP cells are reported at cell centroids relative to the modeled core axial midplane at 24.0 inches.

Table 13: Cycle 146B, MCNP-Calculated HGR, Neutron Flux, Depletion, and Fission Density for AFIP-6 Fuel Foil, Plate Position A, 28 EFPD (MOC2), Center Lobe Power at 26.7 MW.³

| Cell | MCNP Cell Centroid Elevation ^(a) (inches) | Fission Power Density (W/cc) | Fission Heat Rate (W/g) | Surface Heat Flux (W/cm ²) | Neutron Flux (n/cm ² sec) | % Depletion U-235 (%) | Fission Density (fission/cc) |
|------|---|---------------------------------|----------------------------|---|---|--------------------------|---------------------------------|
| A-1 | 11.0 | 29498.37 | 1799.41 | 487.02 | 1.14E+15 | 16.82% | 2.33E+21 |
| A-2 | 10.5 | 27198.04 | 1652.56 | 449.04 | 1.15E+15 | 15.50% | 2.13E+21 |
| A-3 | 10.0 | 27157.15 | 1651.30 | 448.36 | 1.16E+15 | 15.75% | 2.17E+21 |
| A-4 | 9.5 | 27219.64 | 1654.55 | 449.40 | 1.17E+15 | 15.63% | 2.16E+21 |
| A-5 | 9.0 | 27650.89 | 1681.45 | 456.52 | 1.19E+15 | 15.82% | 2.18E+21 |
| A-6 | 8.5 | 27837.27 | 1694.33 | 459.59 | 1.20E+15 | 16.07% | 2.22E+21 |
| A-7 | 8.0 | 28201.52 | 1717.17 | 465.61 | 1.23E+15 | 16.19% | 2.24E+21 |
| A-8 | 7.5 | 28118.47 | 1712.59 | 464.24 | 1.22E+15 | 16.32% | 2.26E+21 |
| A-9 | 7.0 | 28523.90 | 1738.34 | 470.93 | 1.23E+15 | 16.45% | 2.28E+21 |
| A-10 | 6.5 | 28826.83 | 1757.34 | 475.93 | 1.24E+15 | 16.57% | 2.29E+21 |
| A-11 | 6.0 | 28718.38 | 1751.86 | 474.14 | 1.25E+15 | 16.89% | 2.33E+21 |
| A-12 | 5.5 | 29238.85 | 1784.44 | 482.73 | 1.25E+15 | 17.01% | 2.35E+21 |
| A-13 | 5.0 | 29374.68 | 1793.20 | 484.98 | 1.26E+15 | 17.08% | 2.37E+21 |
| A-14 | 4.5 | 29215.85 | 1783.09 | 482.35 | 1.26E+15 | 17.01% | 2.36E+21 |
| A-15 | 4.0 | 29269.59 | 1787.21 | 483.24 | 1.27E+15 | 17.14% | 2.38E+21 |
| A-16 | 3.5 | 29395.71 | 1795.58 | 485.32 | 1.27E+15 | 17.27% | 2.40E+21 |
| A-17 | 3.0 | 29734.51 | 1816.85 | 490.92 | 1.28E+15 | 17.39% | 2.41E+21 |
| A-18 | 2.5 | 29891.52 | 1827.74 | 493.51 | 1.28E+15 | 17.64% | 2.45E+21 |
| A-19 | 2.0 | 29793.33 | 1821.23 | 491.89 | 1.28E+15 | 17.52% | 2.43E+21 |
| A-20 | 1.5 | 29786.68 | 1820.97 | 491.78 | 1.28E+15 | 17.58% | 2.44E+21 |
| A-21 | 1.0 | 29946.00 | 1831.19 | 494.41 | 1.28E+15 | 17.64% | 2.45E+21 |
| A-22 | 0.5 | 29883.67 | 1827.42 | 493.38 | 1.29E+15 | 17.71% | 2.46E+21 |
| A-23 | 0.0 | 30070.78 | 1838.46 | 496.47 | 1.28E+15 | 17.52% | 2.44E+21 |
| A-24 | -0.5 | 29939.37 | 1831.77 | 494.30 | 1.28E+15 | 17.83% | 2.48E+21 |
| A-25 | -1.0 | 29881.84 | 1826.75 | 493.35 | 1.29E+15 | 17.58% | 2.44E+21 |
| A-26 | -1.5 | 30168.29 | 1845.06 | 498.08 | 1.28E+15 | 17.71% | 2.46E+21 |
| A-27 | -2.0 | 29684.48 | 1814.80 | 490.09 | 1.28E+15 | 17.58% | 2.44E+21 |
| A-28 | -2.5 | 29754.22 | 1819.99 | 491.24 | 1.28E+15 | 17.71% | 2.46E+21 |
| A-29 | -3.0 | 29705.24 | 1815.62 | 490.43 | 1.28E+15 | 17.52% | 2.43E+21 |
| A-30 | -3.5 | 29882.96 | 1827.22 | 493.37 | 1.28E+15 | 17.64% | 2.44E+21 |
| A-31 | -4.0 | 29741.88 | 1817.67 | 491.04 | 1.28E+15 | 17.45% | 2.43E+21 |
| A-32 | -4.5 | 29680.98 | 1813.57 | 490.03 | 1.28E+15 | 17.39% | 2.41E+21 |
| A-33 | -5.0 | 29646.44 | 1811.33 | 489.46 | 1.27E+15 | 17.33% | 2.41E+21 |
| A-34 | -5.5 | 29647.93 | 1811.12 | 489.49 | 1.28E+15 | 17.33% | 2.40E+21 |
| A-35 | -6.0 | 29621.76 | 1808.51 | 489.06 | 1.27E+15 | 17.14% | 2.37E+21 |
| A-36 | -6.5 | 29240.00 | 1783.65 | 482.75 | 1.26E+15 | 16.89% | 2.33E+21 |
| A-37 | -7.0 | 28981.12 | 1768.58 | 478.48 | 1.25E+15 | 16.95% | 2.35E+21 |
| A-38 | -7.5 | 28644.72 | 1747.91 | 472.92 | 1.24E+15 | 16.95% | 2.34E+21 |
| A-39 | -8.0 | 28731.32 | 1751.32 | 474.35 | 1.23E+15 | 16.57% | 2.30E+21 |
| A-40 | -8.5 | 28438.94 | 1733.89 | 469.53 | 1.23E+15 | 16.64% | 2.31E+21 |
| A-41 | -9.0 | 28019.70 | 1706.72 | 462.61 | 1.22E+15 | 16.38% | 2.26E+21 |
| A-42 | -9.5 | 28248.00 | 1720.57 | 466.37 | 1.21E+15 | 16.32% | 2.26E+21 |
| A-43 | -10.0 | 27917.22 | 1699.55 | 460.91 | 1.20E+15 | 16.19% | 2.23E+21 |
| A-44 | -10.5 | 28039.88 | 1707.37 | 462.94 | 1.18E+15 | 16.19% | 2.24E+21 |
| A-45 | -11.0 | 30060.96 | 1837.93 | 496.31 | 1.17E+15 | 17.58% | 2.45E+21 |
| MAX | NA | 30168.29 | 1845.06 | 498.08 | 1.29E+15 | 17.83% | 2.48E+21 |
| MIN | NA | 27157.15 | 1651.30 | 448.36 | 1.14E+15 | 15.50% | 2.13E+21 |
| AVG | NA | 29071.75 | 1774.20 | 479.97 | 1.24E+15 | 16.96% | 2.35E+21 |

(a) Elevations for MCNP cells are reported at cell centroids relative to the modeled core axial midplane at 24.0 inches.

Table 14: Cycle 146B, MCNP-Calculated HGR, Neutron Flux, Depletion, and Fission Density for AFIP-6 Fuel Foil, Plate Position B, 28 EFPD (MOC2), Center Lobe Power at 26.7 MW.³

| Cell | MCNP Cell Centroid Elevation ^(a) (inches) | Fission Power Density (W/cc) | Fission Heat Rate (W/g) | Surface Heat Flux (W/cm ²) | Neutron Flux (n/cm ² sec) | % Depletion U-235 (%) | Fission Density (fission/cc) |
|------|---|---------------------------------|----------------------------|---|---|--------------------------|---------------------------------|
| B-1 | 11.0 | 29221.62 | 1780.39 | 482.45 | 1.14E+15 | 16.38% | 2.27E+21 |
| B-2 | 10.5 | 26431.28 | 1604.10 | 436.38 | 1.14E+15 | 15.06% | 2.07E+21 |
| B-3 | 10.0 | 26532.60 | 1610.32 | 438.05 | 1.16E+15 | 15.12% | 2.08E+21 |
| B-4 | 9.5 | 26621.57 | 1616.39 | 439.52 | 1.18E+15 | 15.25% | 2.10E+21 |
| B-5 | 9.0 | 26786.08 | 1627.60 | 442.24 | 1.19E+15 | 15.50% | 2.13E+21 |
| B-6 | 8.5 | 27240.88 | 1655.92 | 449.75 | 1.20E+15 | 15.63% | 2.16E+21 |
| B-7 | 8.0 | 27830.28 | 1692.48 | 459.48 | 1.21E+15 | 15.82% | 2.18E+21 |
| B-8 | 7.5 | 27740.59 | 1688.36 | 458.00 | 1.22E+15 | 16.07% | 2.21E+21 |
| B-9 | 7.0 | 27957.46 | 1701.99 | 461.58 | 1.23E+15 | 16.19% | 2.23E+21 |
| B-10 | 6.5 | 28272.49 | 1722.19 | 466.78 | 1.24E+15 | 16.38% | 2.26E+21 |
| B-11 | 6.0 | 28396.93 | 1730.26 | 468.83 | 1.24E+15 | 16.45% | 2.27E+21 |
| B-12 | 5.5 | 28707.35 | 1750.02 | 473.96 | 1.25E+15 | 16.57% | 2.29E+21 |
| B-13 | 5.0 | 28459.45 | 1735.14 | 469.87 | 1.25E+15 | 16.64% | 2.30E+21 |
| B-14 | 4.5 | 28980.56 | 1768.39 | 478.47 | 1.26E+15 | 16.95% | 2.34E+21 |
| B-15 | 4.0 | 29070.70 | 1773.13 | 479.96 | 1.26E+15 | 16.76% | 2.33E+21 |
| B-16 | 3.5 | 28957.03 | 1766.05 | 478.08 | 1.27E+15 | 16.76% | 2.32E+21 |
| B-17 | 3.0 | 29289.96 | 1786.93 | 483.58 | 1.28E+15 | 16.89% | 2.34E+21 |
| B-18 | 2.5 | 29367.72 | 1793.40 | 484.86 | 1.27E+15 | 17.20% | 2.38E+21 |
| B-19 | 2.0 | 29153.27 | 1780.49 | 481.32 | 1.27E+15 | 17.20% | 2.38E+21 |
| B-20 | 1.5 | 29229.21 | 1784.81 | 482.57 | 1.28E+15 | 17.14% | 2.38E+21 |
| B-21 | 1.0 | 29187.69 | 1782.19 | 481.89 | 1.26E+15 | 17.14% | 2.38E+21 |
| B-22 | 0.5 | 29286.62 | 1788.24 | 483.52 | 1.28E+15 | 17.14% | 2.38E+21 |
| B-23 | 0.0 | 29472.63 | 1799.51 | 486.59 | 1.28E+15 | 17.14% | 2.38E+21 |
| B-24 | -0.5 | 28965.13 | 1768.77 | 478.21 | 1.27E+15 | 17.20% | 2.38E+21 |
| B-25 | -1.0 | 28992.96 | 1770.11 | 478.67 | 1.28E+15 | 17.14% | 2.37E+21 |
| B-26 | -1.5 | 28909.43 | 1765.88 | 477.29 | 1.27E+15 | 17.27% | 2.39E+21 |
| B-27 | -2.0 | 29234.66 | 1785.52 | 482.66 | 1.27E+15 | 17.27% | 2.39E+21 |
| B-28 | -2.5 | 29004.27 | 1771.27 | 478.86 | 1.27E+15 | 17.27% | 2.39E+21 |
| B-29 | -3.0 | 29109.39 | 1777.28 | 480.60 | 1.27E+15 | 17.14% | 2.37E+21 |
| B-30 | -3.5 | 29051.88 | 1773.35 | 479.65 | 1.27E+15 | 17.08% | 2.36E+21 |
| B-31 | -4.0 | 29104.06 | 1776.86 | 480.51 | 1.27E+15 | 17.14% | 2.37E+21 |
| B-32 | -4.5 | 28920.24 | 1765.50 | 477.47 | 1.27E+15 | 17.08% | 2.37E+21 |
| B-33 | -5.0 | 29177.52 | 1780.66 | 481.72 | 1.27E+15 | 17.01% | 2.35E+21 |
| B-34 | -5.5 | 28819.94 | 1757.84 | 475.82 | 1.27E+15 | 16.82% | 2.33E+21 |
| B-35 | -6.0 | 28714.94 | 1751.32 | 474.08 | 1.26E+15 | 16.76% | 2.32E+21 |
| B-36 | -6.5 | 28510.83 | 1738.12 | 470.71 | 1.25E+15 | 16.64% | 2.30E+21 |
| B-37 | -7.0 | 28575.45 | 1741.98 | 471.78 | 1.25E+15 | 16.57% | 2.29E+21 |
| B-38 | -7.5 | 28070.69 | 1710.25 | 463.45 | 1.23E+15 | 16.45% | 2.27E+21 |
| B-39 | -8.0 | 27952.99 | 1702.66 | 461.50 | 1.23E+15 | 16.38% | 2.26E+21 |
| B-40 | -8.5 | 27869.87 | 1696.31 | 460.13 | 1.23E+15 | 16.07% | 2.21E+21 |
| B-41 | -9.0 | 27757.59 | 1689.45 | 458.28 | 1.21E+15 | 16.07% | 2.22E+21 |
| B-42 | -9.5 | 27472.15 | 1671.17 | 453.57 | 1.21E+15 | 15.88% | 2.19E+21 |
| B-43 | -10.0 | 27552.77 | 1675.52 | 454.90 | 1.19E+15 | 15.82% | 2.18E+21 |
| B-44 | -10.5 | 27487.67 | 1671.94 | 453.82 | 1.17E+15 | 15.88% | 2.19E+21 |
| B-45 | -11.0 | 30078.55 | 1837.06 | 496.60 | 1.17E+15 | 17.27% | 2.39E+21 |
| MAX | NA | 30078.55 | 1837.06 | 496.60 | 1.28E+15 | 17.27% | 2.39E+21 |
| MIN | NA | 26431.28 | 1604.10 | 436.38 | 1.14E+15 | 15.06% | 2.07E+21 |
| AVG | NA | 28478.38 | 1735.94 | 470.18 | 1.24E+15 | 16.57% | 2.29E+21 |

(a) Elevations for MCNP cells are reported at cell centroids relative to the modeled core axial midplane at 24.0 inches.

Table 15: Cycle 146B, MCNP-Calculated HGR, Neutron Flux, Depletion, and Fission Density for AFIP-6 Fuel Foil, Plate Position A, 39.2 EFPD (EOC), Center Lobe Power at 26.7MW.³

| Cell | MCNP Cell Centroid Elevation ^(a) (inches) | Fission Power Density (W/cc) | Fission Heat Rate (W/g) | Surface Heat Flux (W/cm ²) | Neutron Flux (n/cm ² sec) | % Depletion U-235 (%) | Fission Density (fission/cc) |
|------|---|---------------------------------|----------------------------|---|---|--------------------------|---------------------------------|
| A-1 | 11.0 | 28220.45 | 1757.60 | 465.92 | 1.14E+15 | 23.69% | 3.30E+21 |
| A-2 | 10.5 | 26227.77 | 1624.60 | 433.02 | 1.14E+15 | 21.93% | 3.03E+21 |
| A-3 | 10.0 | 26124.72 | 1619.27 | 431.32 | 1.16E+15 | 22.18% | 3.06E+21 |
| A-4 | 9.5 | 26264.04 | 1627.49 | 433.62 | 1.17E+15 | 22.05% | 3.05E+21 |
| A-5 | 9.0 | 26623.52 | 1651.00 | 439.55 | 1.19E+15 | 22.31% | 3.08E+21 |
| A-6 | 8.5 | 26848.51 | 1666.40 | 443.27 | 1.20E+15 | 22.62% | 3.13E+21 |
| A-7 | 8.0 | 27179.18 | 1688.20 | 448.73 | 1.22E+15 | 22.87% | 3.16E+21 |
| A-8 | 7.5 | 27027.55 | 1679.33 | 446.22 | 1.21E+15 | 22.94% | 3.18E+21 |
| A-9 | 7.0 | 27429.10 | 1705.36 | 452.85 | 1.22E+15 | 23.13% | 3.21E+21 |
| A-10 | 6.5 | 27725.20 | 1724.67 | 457.74 | 1.24E+15 | 23.38% | 3.24E+21 |
| A-11 | 6.0 | 27644.07 | 1721.18 | 456.40 | 1.24E+15 | 23.63% | 3.27E+21 |
| A-12 | 5.5 | 28114.34 | 1751.58 | 464.17 | 1.24E+15 | 23.82% | 3.31E+21 |
| A-13 | 5.0 | 28165.61 | 1755.51 | 465.01 | 1.26E+15 | 24.01% | 3.33E+21 |
| A-14 | 4.5 | 28027.82 | 1746.33 | 462.74 | 1.25E+15 | 23.88% | 3.32E+21 |
| A-15 | 4.0 | 28037.32 | 1747.79 | 462.90 | 1.26E+15 | 24.01% | 3.34E+21 |
| A-16 | 3.5 | 28257.55 | 1762.38 | 466.53 | 1.27E+15 | 24.13% | 3.36E+21 |
| A-17 | 3.0 | 28515.73 | 1779.43 | 470.79 | 1.27E+15 | 24.39% | 3.39E+21 |
| A-18 | 2.5 | 28735.60 | 1794.46 | 474.42 | 1.27E+15 | 24.64% | 3.43E+21 |
| A-19 | 2.0 | 28558.17 | 1782.87 | 471.50 | 1.27E+15 | 24.51% | 3.41E+21 |
| A-20 | 1.5 | 28559.79 | 1783.32 | 471.52 | 1.28E+15 | 24.57% | 3.42E+21 |
| A-21 | 1.0 | 28733.88 | 1795.04 | 474.40 | 1.27E+15 | 24.70% | 3.44E+21 |
| A-22 | 0.5 | 28661.06 | 1790.14 | 473.19 | 1.28E+15 | 24.70% | 3.44E+21 |
| A-23 | 0.0 | 28791.83 | 1797.84 | 475.35 | 1.28E+15 | 24.57% | 3.42E+21 |
| A-24 | -0.5 | 28682.11 | 1792.67 | 473.54 | 1.28E+15 | 24.89% | 3.46E+21 |
| A-25 | -1.0 | 28647.41 | 1788.86 | 472.97 | 1.28E+15 | 24.57% | 3.42E+21 |
| A-26 | -1.5 | 28872.07 | 1803.88 | 476.68 | 1.28E+15 | 24.76% | 3.45E+21 |
| A-27 | -2.0 | 28481.98 | 1778.16 | 470.24 | 1.27E+15 | 24.51% | 3.41E+21 |
| A-28 | -2.5 | 28544.80 | 1783.02 | 471.27 | 1.28E+15 | 24.70% | 3.44E+21 |
| A-29 | -3.0 | 28491.74 | 1778.26 | 470.40 | 1.27E+15 | 24.45% | 3.40E+21 |
| A-30 | -3.5 | 28659.31 | 1789.74 | 473.17 | 1.27E+15 | 24.57% | 3.42E+21 |
| A-31 | -4.0 | 28564.69 | 1783.12 | 471.60 | 1.28E+15 | 24.45% | 3.40E+21 |
| A-32 | -4.5 | 28422.42 | 1773.38 | 469.25 | 1.27E+15 | 24.32% | 3.38E+21 |
| A-33 | -5.0 | 28459.61 | 1775.86 | 469.87 | 1.27E+15 | 24.32% | 3.38E+21 |
| A-34 | -5.5 | 28459.43 | 1775.38 | 469.87 | 1.27E+15 | 24.26% | 3.37E+21 |
| A-35 | -6.0 | 28433.52 | 1772.66 | 469.44 | 1.26E+15 | 24.07% | 3.34E+21 |
| A-36 | -6.5 | 28100.53 | 1749.89 | 463.94 | 1.26E+15 | 23.69% | 3.29E+21 |
| A-37 | -7.0 | 27792.57 | 1731.17 | 458.86 | 1.24E+15 | 23.76% | 3.30E+21 |
| A-38 | -7.5 | 27568.39 | 1716.61 | 455.15 | 1.24E+15 | 23.63% | 3.28E+21 |
| A-39 | -8.0 | 27672.02 | 1721.41 | 456.86 | 1.23E+15 | 23.38% | 3.24E+21 |
| A-40 | -8.5 | 27392.46 | 1704.02 | 452.25 | 1.22E+15 | 23.38% | 3.24E+21 |
| A-41 | -9.0 | 26947.65 | 1674.41 | 444.91 | 1.21E+15 | 22.94% | 3.18E+21 |
| A-42 | -9.5 | 27141.90 | 1686.57 | 448.11 | 1.20E+15 | 22.94% | 3.18E+21 |
| A-43 | -10.0 | 26918.64 | 1671.48 | 444.43 | 1.19E+15 | 22.75% | 3.14E+21 |
| A-44 | -10.5 | 27037.81 | 1679.15 | 446.39 | 1.18E+15 | 22.81% | 3.16E+21 |
| A-45 | -11.0 | 28728.24 | 1794.17 | 474.30 | 1.16E+15 | 24.57% | 3.43E+21 |
| MAX | NA | 28872.07 | 1803.88 | 476.68 | 1.28E+15 | 24.89% | 3.46E+21 |
| MIN | NA | 26124.72 | 1619.27 | 431.32 | 1.14E+15 | 21.93% | 3.03E+21 |
| AVG | NA | 27922.05 | 1739.46 | 460.99 | 1.24E+15 | 23.79% | 3.30E+21 |

(a) Elevations for MCNP cells are reported at cell centroids relative to the modeled core axial midplane at 24.0 inches.

Table 16: Cycle 146B, MCNP-Calculated HGR, Neutron Flux, Depletion, and Fission Density for AFIP-6 Fuel Foil, Plate Position B, 39.2 EFPD (EOC), Center Lobe Power at 26.7 MW.³

| Cell | MCNP Cell Centroid Elevation ^(a) (inches) | Fission Power Density (W/cc) | Fission Heat Rate (W/g) | Surface Heat Flux (W/cm ²) | Neutron Flux (n/cm ² sec) | % Depletion U-235 (%) | Fission Density (fission/cc) |
|------|---|---------------------------------|----------------------------|---|---|--------------------------|---------------------------------|
| B-1 | 11.0 | 28011.79 | 1742.45 | 462.47 | 1.14E+15 | 23.25% | 3.23E+21 |
| B-2 | 10.5 | 25584.16 | 1581.69 | 422.39 | 1.14E+15 | 21.30% | 2.94E+21 |
| B-3 | 10.0 | 25601.21 | 1583.32 | 422.68 | 1.15E+15 | 21.42% | 2.95E+21 |
| B-4 | 9.5 | 25700.47 | 1590.28 | 424.31 | 1.17E+15 | 21.55% | 2.97E+21 |
| B-5 | 9.0 | 25893.35 | 1603.06 | 427.50 | 1.18E+15 | 21.80% | 3.01E+21 |
| B-6 | 8.5 | 26248.40 | 1626.36 | 433.36 | 1.19E+15 | 22.05% | 3.05E+21 |
| B-7 | 8.0 | 26792.27 | 1661.53 | 442.34 | 1.20E+15 | 22.37% | 3.09E+21 |
| B-8 | 7.5 | 26706.65 | 1657.37 | 440.93 | 1.22E+15 | 22.62% | 3.12E+21 |
| B-9 | 7.0 | 26915.32 | 1671.18 | 444.37 | 1.23E+15 | 22.75% | 3.15E+21 |
| B-10 | 6.5 | 27241.25 | 1692.79 | 449.75 | 1.23E+15 | 23.00% | 3.18E+21 |
| B-11 | 6.0 | 27343.92 | 1699.67 | 451.45 | 1.24E+15 | 23.13% | 3.20E+21 |
| B-12 | 5.5 | 27620.60 | 1718.15 | 456.02 | 1.25E+15 | 23.38% | 3.23E+21 |
| B-13 | 5.0 | 27424.83 | 1706.11 | 452.78 | 1.25E+15 | 23.38% | 3.24E+21 |
| B-14 | 4.5 | 27787.15 | 1730.51 | 458.77 | 1.25E+15 | 23.69% | 3.29E+21 |
| B-15 | 4.0 | 27925.26 | 1738.65 | 461.05 | 1.25E+15 | 23.63% | 3.28E+21 |
| B-16 | 3.5 | 27830.29 | 1732.33 | 459.48 | 1.26E+15 | 23.57% | 3.27E+21 |
| B-17 | 3.0 | 28127.88 | 1752.13 | 464.39 | 1.27E+15 | 23.76% | 3.30E+21 |
| B-18 | 2.5 | 28153.07 | 1755.14 | 464.81 | 1.27E+15 | 24.07% | 3.34E+21 |
| B-19 | 2.0 | 28055.79 | 1749.12 | 463.20 | 1.27E+15 | 24.01% | 3.34E+21 |
| B-20 | 1.5 | 28086.04 | 1750.90 | 463.70 | 1.27E+15 | 24.01% | 3.33E+21 |
| B-21 | 1.0 | 28022.57 | 1746.68 | 462.65 | 1.26E+15 | 24.01% | 3.33E+21 |
| B-22 | 0.5 | 28135.27 | 1753.94 | 464.51 | 1.27E+15 | 24.01% | 3.34E+21 |
| B-23 | 0.0 | 28328.26 | 1766.02 | 467.70 | 1.27E+15 | 24.07% | 3.34E+21 |
| B-24 | -0.5 | 27898.57 | 1738.60 | 460.61 | 1.27E+15 | 23.94% | 3.33E+21 |
| B-25 | -1.0 | 27878.54 | 1737.20 | 460.27 | 1.27E+15 | 23.94% | 3.32E+21 |
| B-26 | -1.5 | 27780.37 | 1731.82 | 458.65 | 1.26E+15 | 24.01% | 3.34E+21 |
| B-27 | -2.0 | 28132.80 | 1754.11 | 464.47 | 1.27E+15 | 24.07% | 3.35E+21 |
| B-28 | -2.5 | 27866.44 | 1737.21 | 460.07 | 1.27E+15 | 24.01% | 3.34E+21 |
| B-29 | -3.0 | 28012.40 | 1745.78 | 462.48 | 1.27E+15 | 23.94% | 3.33E+21 |
| B-30 | -3.5 | 27858.49 | 1735.86 | 459.94 | 1.26E+15 | 23.88% | 3.31E+21 |
| B-31 | -4.0 | 27859.80 | 1736.30 | 459.97 | 1.26E+15 | 23.94% | 3.33E+21 |
| B-32 | -4.5 | 27858.33 | 1736.02 | 459.94 | 1.26E+15 | 23.88% | 3.32E+21 |
| B-33 | -5.0 | 28086.30 | 1749.92 | 463.70 | 1.26E+15 | 23.88% | 3.31E+21 |
| B-34 | -5.5 | 27722.03 | 1725.52 | 457.69 | 1.26E+15 | 23.57% | 3.27E+21 |
| B-35 | -6.0 | 27549.99 | 1714.40 | 454.85 | 1.25E+15 | 23.44% | 3.26E+21 |
| B-36 | -6.5 | 27442.47 | 1706.94 | 453.08 | 1.25E+15 | 23.31% | 3.23E+21 |
| B-37 | -7.0 | 27483.38 | 1709.40 | 453.75 | 1.24E+15 | 23.31% | 3.23E+21 |
| B-38 | -7.5 | 27064.01 | 1681.83 | 446.83 | 1.23E+15 | 23.06% | 3.19E+21 |
| B-39 | -8.0 | 26952.20 | 1674.66 | 444.98 | 1.23E+15 | 22.94% | 3.18E+21 |
| B-40 | -8.5 | 26918.87 | 1670.68 | 444.43 | 1.23E+15 | 22.62% | 3.13E+21 |
| B-41 | -9.0 | 26788.12 | 1662.52 | 442.27 | 1.21E+15 | 22.62% | 3.13E+21 |
| B-42 | -9.5 | 26433.44 | 1639.47 | 436.42 | 1.20E+15 | 22.37% | 3.09E+21 |
| B-43 | -10.0 | 26619.43 | 1650.58 | 439.49 | 1.18E+15 | 22.31% | 3.08E+21 |
| B-44 | -10.5 | 26498.96 | 1643.37 | 437.50 | 1.17E+15 | 22.31% | 3.09E+21 |
| B-45 | -11.0 | 28733.38 | 1792.54 | 474.39 | 1.17E+15 | 24.26% | 3.38E+21 |
| MAX | NA | 28733.38 | 1792.54 | 474.39 | 1.27E+15 | 24.26% | 3.38E+21 |
| MIN | NA | 25584.16 | 1581.69 | 422.39 | 1.14E+15 | 21.30% | 2.94E+21 |
| AVG | NA | 27399.42 | 1704.09 | 452.36 | 1.23E+15 | 23.25% | 3.22E+21 |

(a) Elevations for MCNP cells are reported at cell centroids relative to the modeled core axial midplane at 24.0 inches.

6.2 Axial Gradient

The axial gradient is represented by the neutron flux profile for plate position A and B as shown in as shown in Figure 8 and Figure 9, respectively, and the corrected fission density profile as shown in Figure 10. Since the AFIP-6 experiment was irradiated in the CFT, the transverse (radial) profile is relatively flat across the plates and was not reported.

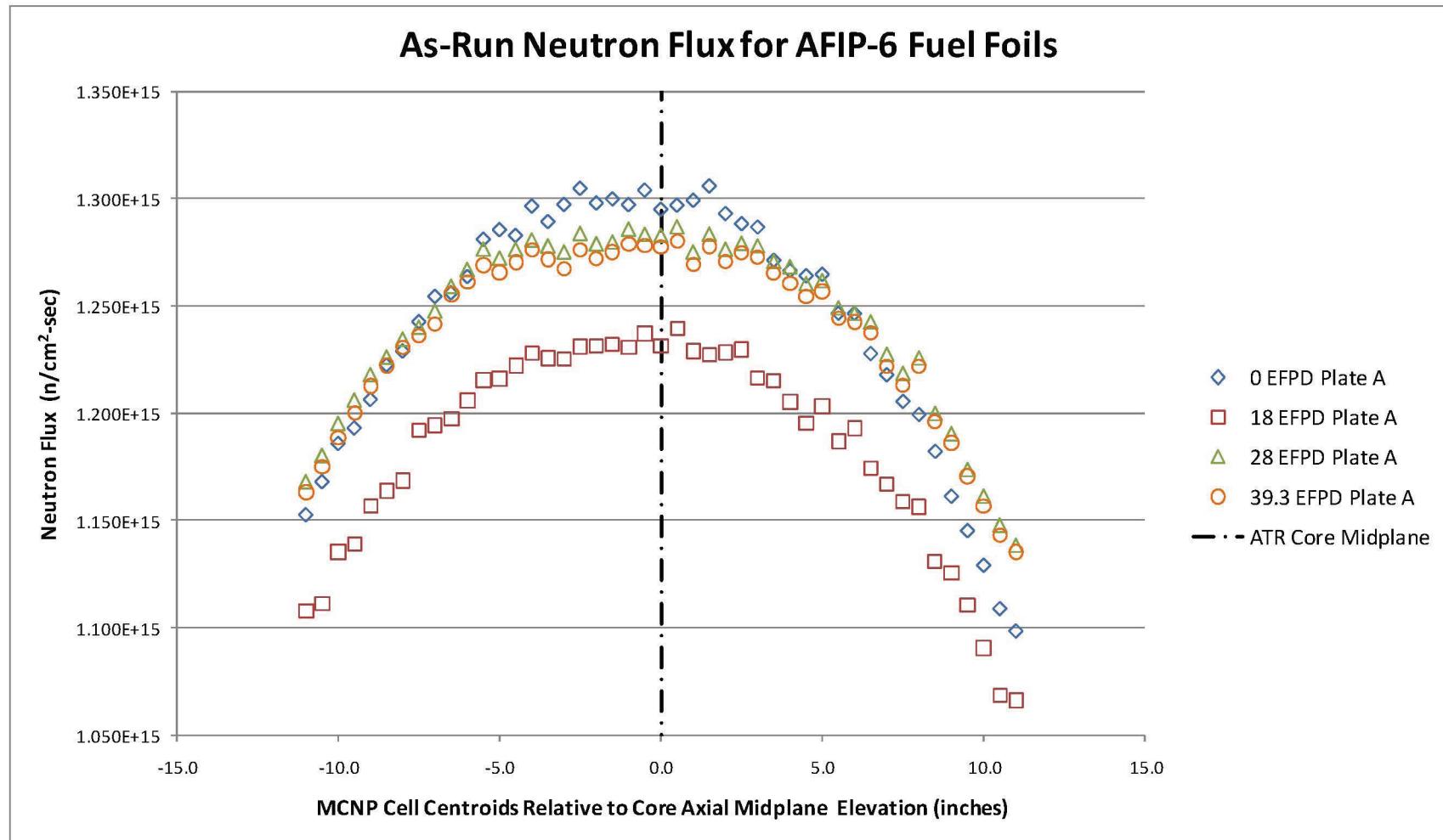


Figure 8: AFIP-6 Axial Neutron Flux Profile for Plate Position A.³

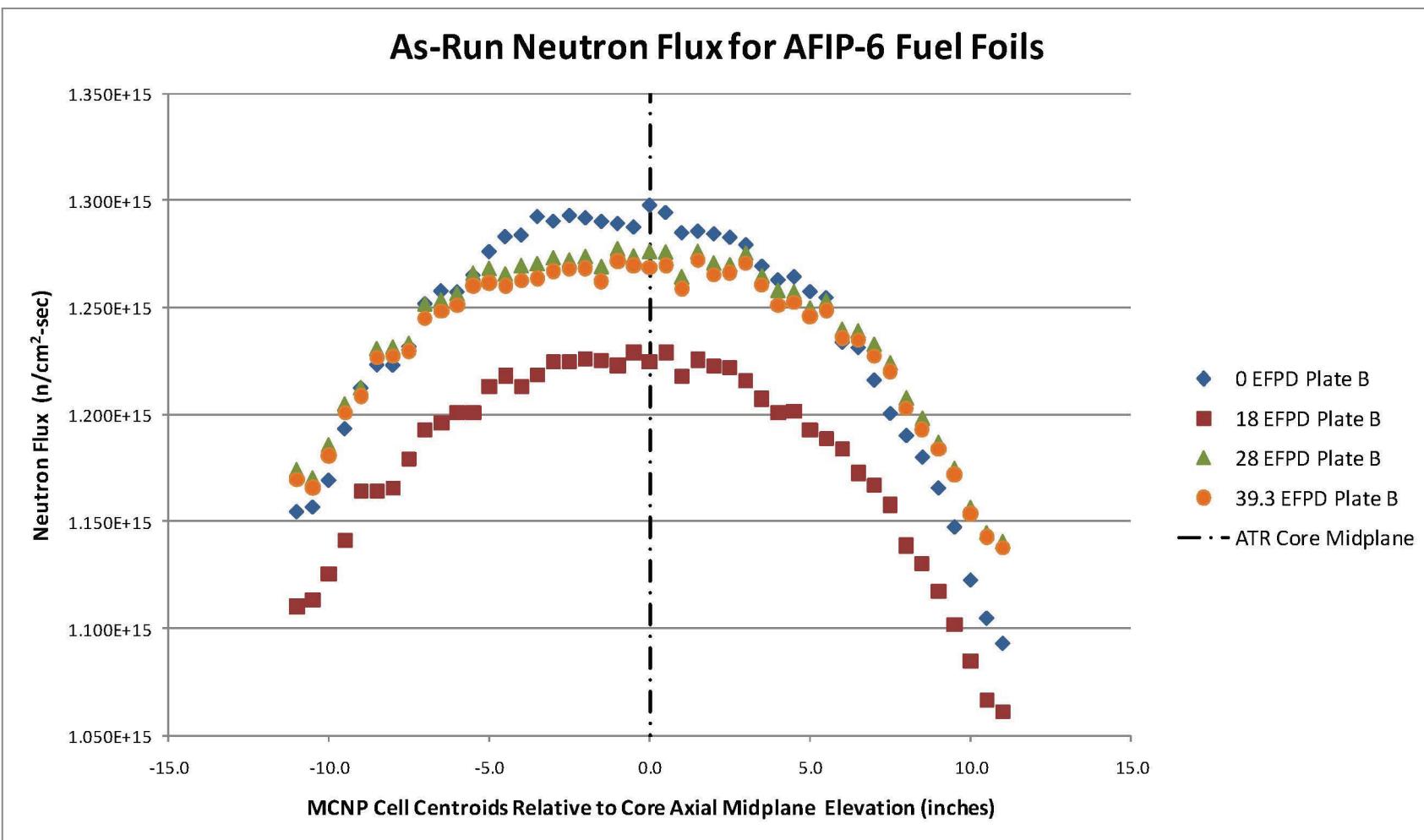


Figure 9: AFIP-6 Axial Neutron Flux Profile for Plate Position B.³

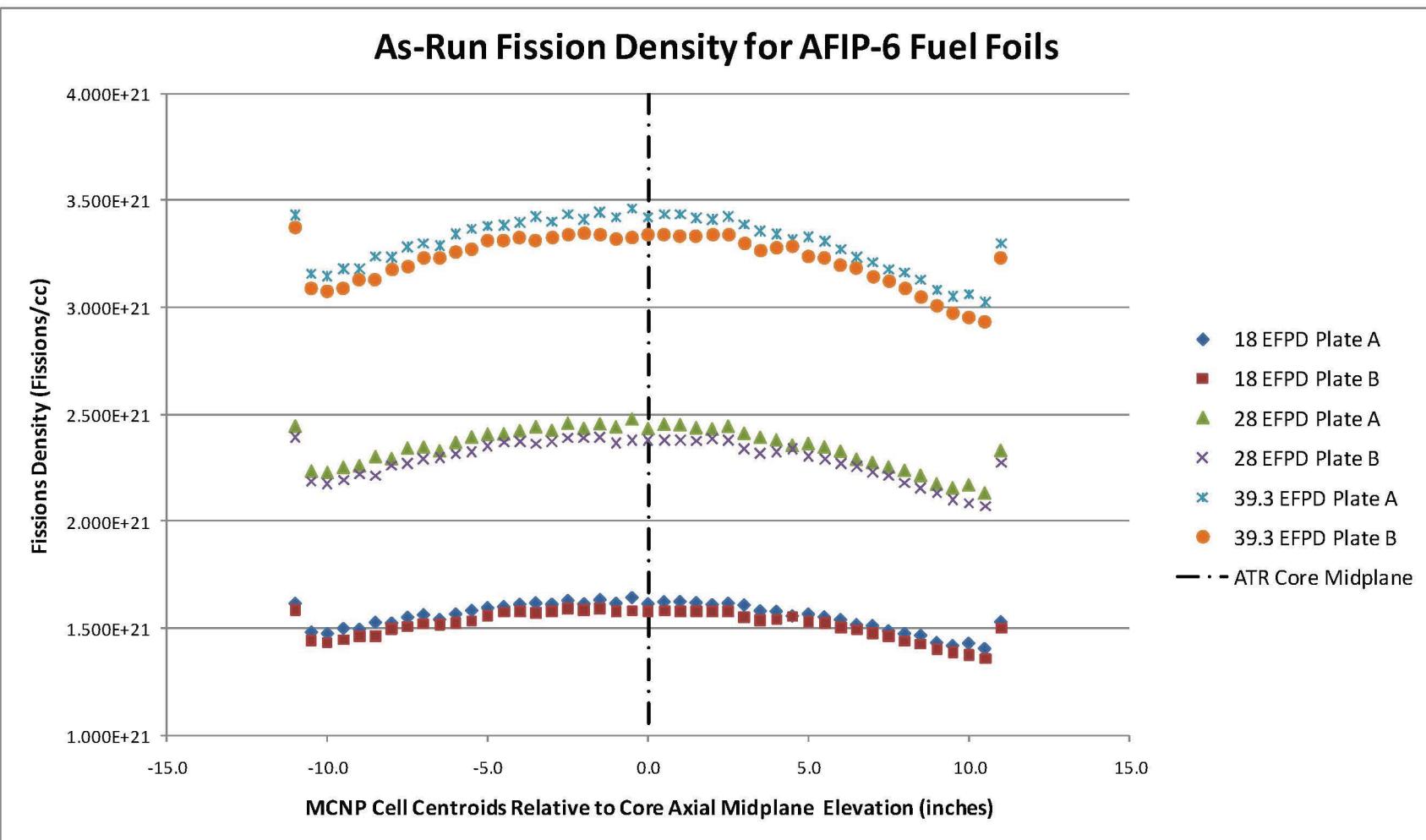


Figure 10: AFIP-6 As-Run Fission Density Profile for Both Plate Positions.³

7. HYDRAULIC TESTING

Flow tests were performed to characterize the test assembly designed to irradiate full-size plates for the RERTR program in the ATR. The holder assembly design was used for several plate tests that were conducted in the CFT position⁵.

The test apparatus was designed and constructed to simulate the ATR CFT position geometry. The holder was fabricated such that the orifice plate on the bottom of the test train could be screwed on (rather than welded) to allow variation of the orifice diameter. The results of the flow tests were used to generate estimates of the coolant velocity and flow rate and are reported in Table 17⁵.

Table 17: AFIP irradiation vehicle flow conditions for each orifice configuration⁵.

| Configuration | Total Internal Loss Coefficient | Total Holder Internal Flow (gpm) | Channel Coolant Flow (gpm) | Channel Coolant Velocity (m/s) |
|-------------------|---------------------------------|----------------------------------|----------------------------|--------------------------------|
| 6 mm orifice | 0.1709 | 20.8 | 6.6 | 1.7 |
| 7 mm orifice | 0.1203 | 24.8 | 7.9 | 2.0 |
| 8 mm orifice | 0.0869 | 29.2 | 9.3 | 2.4 |
| 8.1 mm orifice | 0.0861 | 29.3 | 9.3 | 2.4 |
| 9 mm orifice | 0.0680 | 33.0 | 10.5 | 2.7 |
| 10 mm orifice | 0.0568 | 36.1 | 11.5 | 3.0 |
| Open (no orifice) | 0.00164 | 212.5 | 67.5 | 17.4 |

Based on the results from the hydraulic testing, the orifice was sized to 0.8125 inches (20.64 mm) to provide a coolant channel velocity of approximately 10.36 m/s for two pump operation⁶.

8. AS-RUN THERMAL ANALYSIS

The thermal as-run analysis was performed using the as-built geometry, MCNP-calculated surface heat flux (W/cm^2) and nominal coolant channel flow rate. ABAQUS⁷ was used to calculate the coolant channel temperatures and plate surface temperatures.

The heat transfer correlation used to calculate these temperatures was calculated from the Colburn equation (equation 5-50c from Reference 8):

$$Nu = \frac{hD}{k} = 0.023Re^{0.8}Pr^{0.3}$$

Where Nu is the Nusselt number, h is the heat transfer coefficient, D is the hydraulic diameter, k is the thermal conductivity, Re is the Reynolds number and Pr is the Prandlt number.

8.1 Coolant Channel Temperature

The coolant temperature was analyzed at the three flow channels in the test assembly. The left coolant channel is west of plate position B, the center coolant channel is in between plate positions A and B, and the right coolant channel is in between plate position A and the Ram Rod (refer to Figure 1). For each cycle interval, the coolant temperature was plotted as a function of location along the test assembly with 0.0 inches being at the top of the assembly. These plots are show in Figure 11 through Figure 14.

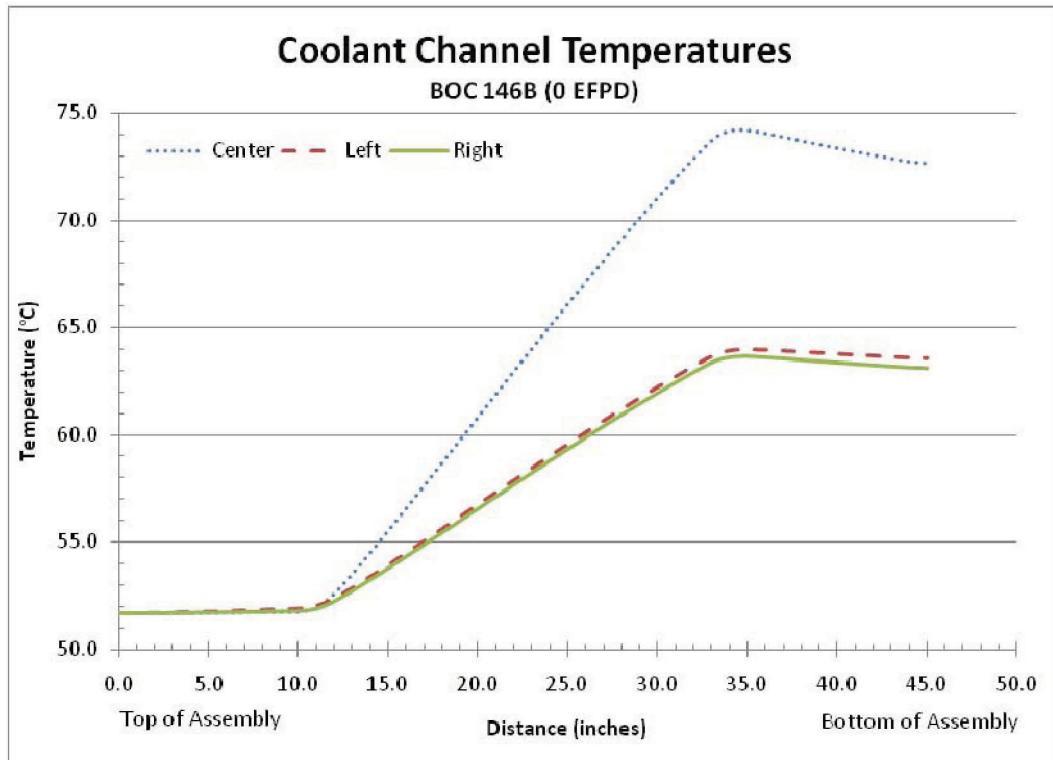


Figure 11: Coolant channel temperatures as a function of location along the AFIP-6 test assembly at BOC 146B (0.0 EFPD).

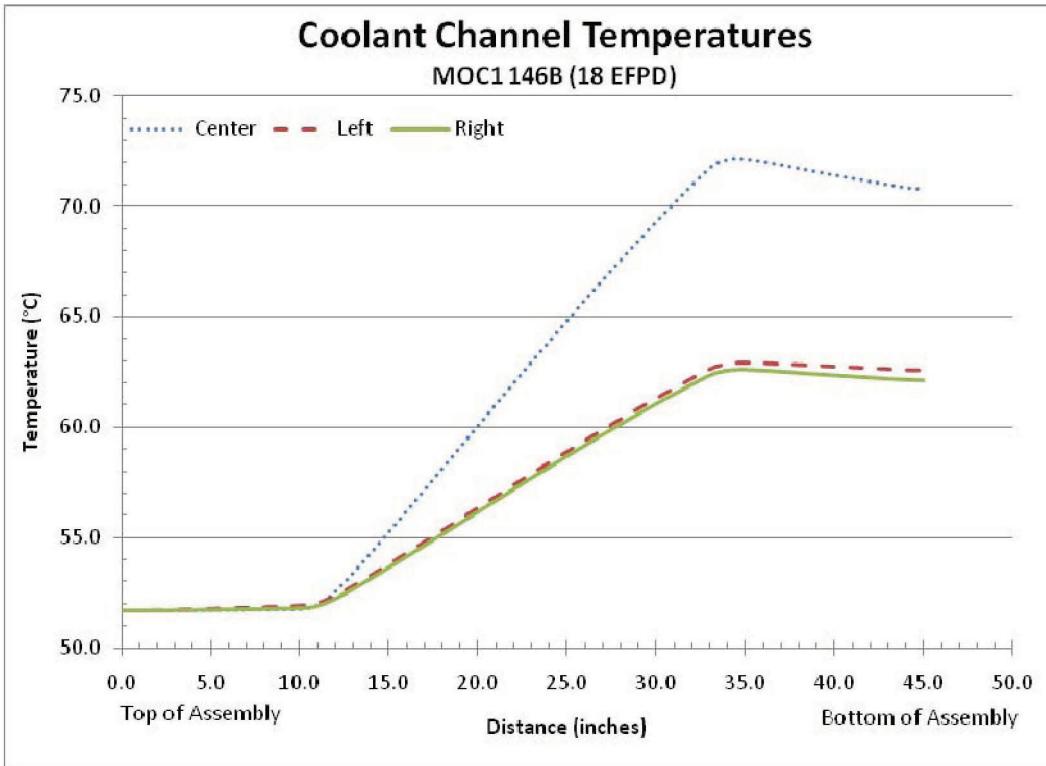


Figure 12: Coolant channel temperatures as a function of location along the AFIP-6 test assembly at MOC1 146B (18.0 EFPD).

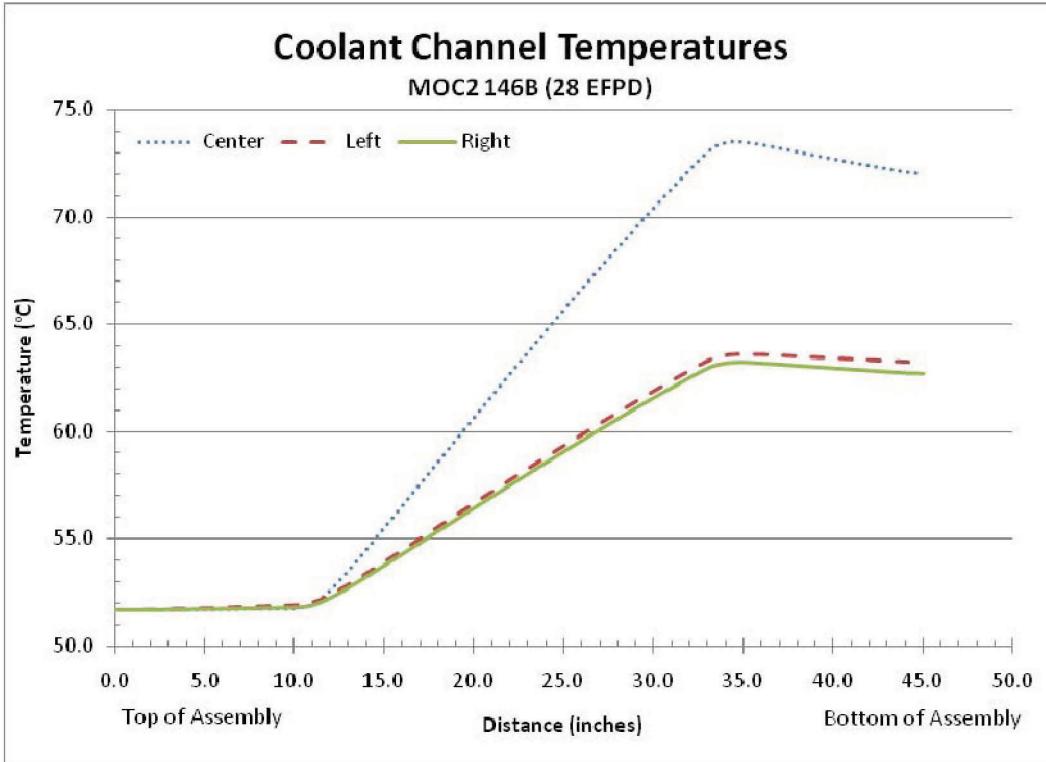


Figure 13: Coolant channel temperatures as a function of location along the AFIP-6 test assembly at MOC2 146B (28.0 EFPD).

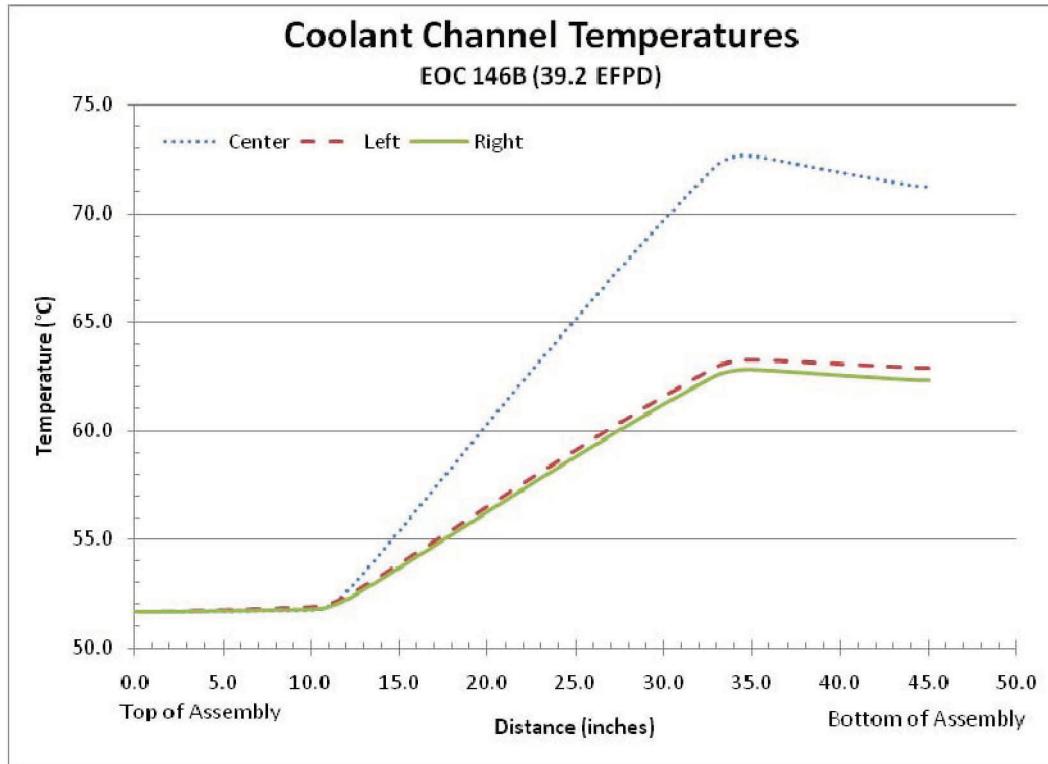


Figure 14: Coolant channel temperatures as a function of location along the AFIP-6 test assembly at EOC 146B (39.2 EFPD).

8.2 Plate Surface Temperature

The plate surface temperatures were analyzed at each time step for each side of the plate, with the east side of the plate facing the ram rod. Table 18 through Table 21 tabulate the 2D map of the temperatures for each side of the plate at EOC for cycle 146B. The plate surface temperatures for each time step are tabulated in Appendix B.

Table 18: Temperature (°C) map of the east side of plate 6ZH-1 at EOC 146B (39.2 EFPD).

| Length of Plate (in) | Width of Plate (inches) | | | | | | | | | |
|----------------------|-------------------------|-------|-------|-------|--------|--------|--------|-------|-------|-------|
| | 0.00 | 0.08 | 0.16 | 0.25 | 0.50 | 1.00 | 1.50 | 2.00 | 2.08 | 2.16 |
| 0.0 | 51.67 | 51.67 | 51.67 | 51.78 | 51.76 | 51.76 | 51.76 | 51.78 | 51.67 | 51.67 |
| 1.0 | 52.41 | 52.35 | 52.04 | 51.86 | 51.79 | 51.78 | 51.78 | 51.85 | 52.04 | 52.32 |
| 3.0 | 52.69 | 52.60 | 52.18 | 51.93 | 51.84 | 51.83 | 51.83 | 51.92 | 52.18 | 52.55 |
| 5.0 | 52.97 | 52.85 | 52.32 | 52.01 | 51.89 | 51.89 | 51.89 | 52.00 | 52.33 | 52.80 |
| 7.0 | 53.26 | 53.10 | 52.47 | 52.09 | 51.94 | 51.94 | 51.94 | 52.07 | 52.46 | 53.02 |
| 9.0 | 53.53 | 53.35 | 52.61 | 52.17 | 52.00 | 51.99 | 51.99 | 52.16 | 52.63 | 53.29 |
| 11.0 | 53.90 | 53.71 | 52.92 | 52.91 | 54.69 | 55.63 | 55.53 | 52.89 | 52.91 | 53.62 |
| 11.5 | 54.24 | 54.26 | 53.80 | 57.36 | 135.58 | 143.60 | 143.40 | 57.34 | 53.75 | 54.18 |
| 12.0 | 54.39 | 54.43 | 53.93 | 57.59 | 131.40 | 139.33 | 139.08 | 57.57 | 53.88 | 54.35 |
| 13.0 | 54.59 | 54.62 | 54.09 | 57.83 | 131.92 | 139.96 | 139.67 | 57.82 | 54.04 | 54.55 |
| 14.0 | 54.79 | 54.84 | 54.28 | 58.17 | 133.76 | 142.01 | 141.67 | 58.16 | 54.23 | 54.77 |
| 15.0 | 55.00 | 55.06 | 54.48 | 58.46 | 134.55 | 142.93 | 142.56 | 58.44 | 54.41 | 54.97 |
| 16.0 | 55.22 | 55.29 | 54.70 | 58.83 | 136.60 | 145.20 | 144.78 | 58.80 | 54.63 | 55.18 |
| 17.0 | 55.44 | 55.53 | 54.93 | 59.17 | 137.88 | 146.64 | 146.19 | 59.15 | 54.87 | 55.46 |
| 18.0 | 55.66 | 55.76 | 55.16 | 59.45 | 138.00 | 146.82 | 146.34 | 59.44 | 55.11 | 55.70 |
| 19.0 | 55.88 | 56.00 | 55.41 | 59.78 | 138.87 | 147.83 | 147.30 | 59.77 | 55.34 | 55.93 |
| 20.0 | 56.10 | 56.25 | 55.67 | 60.17 | 140.35 | 149.47 | 148.91 | 60.15 | 55.59 | 56.16 |
| 21.0 | 56.32 | 56.49 | 55.92 | 60.46 | 140.24 | 149.41 | 148.82 | 60.44 | 55.84 | 56.39 |
| 22.0 | 56.54 | 56.74 | 56.19 | 60.80 | 140.80 | 150.07 | 149.44 | 60.78 | 56.11 | 56.66 |
| 23.0 | 56.76 | 56.99 | 56.46 | 61.13 | 141.16 | 150.51 | 149.84 | 61.11 | 56.37 | 56.90 |
| 24.0 | 56.98 | 57.23 | 56.73 | 61.49 | 141.92 | 151.37 | 150.67 | 61.47 | 56.64 | 57.13 |
| 25.0 | 57.19 | 57.47 | 57.00 | 61.78 | 141.43 | 150.91 | 150.17 | 61.76 | 56.90 | 57.38 |
| 26.0 | 57.40 | 57.72 | 57.28 | 62.14 | 142.01 | 151.58 | 150.81 | 62.12 | 57.20 | 57.65 |
| 27.0 | 57.61 | 57.96 | 57.56 | 62.45 | 141.75 | 151.34 | 150.54 | 62.44 | 57.48 | 57.91 |
| 28.0 | 57.81 | 58.20 | 57.85 | 62.80 | 142.14 | 151.80 | 150.97 | 62.79 | 57.75 | 58.13 |
| 29.0 | 58.01 | 58.43 | 58.12 | 63.10 | 141.57 | 151.22 | 150.36 | 63.08 | 58.01 | 58.34 |
| 30.0 | 58.20 | 58.66 | 58.39 | 63.37 | 140.57 | 150.19 | 149.30 | 63.35 | 58.28 | 58.57 |
| 31.0 | 58.39 | 58.88 | 58.67 | 63.69 | 140.43 | 150.06 | 149.15 | 63.67 | 58.56 | 58.81 |
| 32.0 | 58.57 | 59.10 | 58.95 | 63.99 | 140.10 | 149.74 | 148.80 | 63.98 | 58.84 | 59.04 |
| 33.0 | 58.75 | 59.32 | 59.23 | 64.34 | 140.13 | 149.80 | 148.84 | 64.32 | 59.10 | 59.24 |
| 33.5 | 58.77 | 59.35 | 59.30 | 64.33 | 143.72 | 153.47 | 152.53 | 64.31 | 59.17 | 59.27 |
| 35.0 | 58.67 | 59.08 | 58.77 | 60.11 | 63.17 | 66.18 | 65.02 | 60.09 | 58.70 | 59.01 |
| 37.0 | 58.83 | 59.29 | 59.12 | 60.41 | 62.98 | 65.80 | 64.70 | 60.39 | 59.04 | 59.22 |
| 39.0 | 58.94 | 59.43 | 59.39 | 60.67 | 62.92 | 65.57 | 64.53 | 60.65 | 59.30 | 59.36 |
| 41.0 | 59.00 | 59.52 | 59.59 | 60.89 | 62.89 | 65.37 | 64.40 | 60.87 | 59.51 | 59.48 |
| 43.0 | 59.01 | 59.57 | 59.75 | 61.07 | 62.88 | 65.19 | 64.28 | 61.05 | 59.66 | 59.52 |
| 45.0 | 58.96 | 59.55 | 59.84 | 61.18 | 62.86 | 65.05 | 64.19 | 61.17 | 59.77 | 59.56 |
| MAX | 59.01 | 59.57 | 59.84 | 64.34 | 143.72 | 153.47 | 152.53 | 64.32 | 59.77 | 59.56 |
| MIN | 51.67 | 51.67 | 51.67 | 51.78 | 51.76 | 51.76 | 51.76 | 51.78 | 51.67 | 51.67 |
| AVE | 56.28 | 56.50 | 56.13 | 59.24 | 110.28 | 116.63 | 116.05 | 59.22 | 56.06 | 56.43 |

Table 19: Temperature (°C) map of the west side of plate 6ZH-1 at EOC 146B (39.2 EFPD).

| Length of Plate (in) | Width of Plate (inches) | | | | | | | | | |
|----------------------|-------------------------|-------|-------|-------|--------|--------|--------|-------|-------|-------|
| | 0.00 | 0.08 | 0.16 | 0.25 | 0.50 | 1.00 | 1.50 | 2.00 | 2.08 | 2.16 |
| 0.0 | 51.67 | 51.67 | 51.67 | 51.77 | 51.76 | 51.76 | 51.76 | 51.77 | 51.67 | 51.67 |
| 1.0 | 52.50 | 52.46 | 52.11 | 51.85 | 51.79 | 51.78 | 51.78 | 51.85 | 52.07 | 52.44 |
| 3.0 | 52.80 | 52.75 | 52.27 | 51.92 | 51.84 | 51.83 | 51.83 | 51.92 | 52.20 | 52.68 |
| 5.0 | 53.11 | 53.03 | 52.43 | 52.00 | 51.89 | 51.88 | 51.88 | 52.00 | 52.36 | 52.96 |
| 7.0 | 53.41 | 53.31 | 52.59 | 52.08 | 51.94 | 51.93 | 51.93 | 52.07 | 52.49 | 53.18 |
| 9.0 | 53.71 | 53.58 | 52.75 | 52.15 | 51.99 | 51.98 | 51.98 | 52.15 | 52.68 | 53.54 |
| 11.0 | 54.11 | 54.00 | 53.09 | 52.89 | 54.70 | 55.63 | 55.54 | 52.88 | 52.98 | 53.87 |
| 11.5 | 54.52 | 54.66 | 53.98 | 57.36 | 135.61 | 143.64 | 143.43 | 57.34 | 53.91 | 54.52 |
| 12.0 | 54.69 | 54.86 | 54.15 | 57.60 | 131.46 | 139.40 | 139.15 | 57.59 | 54.07 | 54.70 |
| 13.0 | 54.91 | 55.09 | 54.36 | 57.89 | 132.06 | 140.16 | 139.84 | 57.88 | 54.29 | 54.95 |
| 14.0 | 55.13 | 55.35 | 54.62 | 58.29 | 134.01 | 142.37 | 141.99 | 58.28 | 54.54 | 55.20 |
| 15.0 | 55.37 | 55.61 | 54.89 | 58.65 | 134.94 | 143.47 | 143.03 | 58.63 | 54.79 | 55.42 |
| 16.0 | 55.60 | 55.88 | 55.19 | 59.10 | 137.12 | 145.92 | 145.42 | 59.08 | 55.08 | 55.66 |
| 17.0 | 55.85 | 56.17 | 55.50 | 59.52 | 138.55 | 147.56 | 147.00 | 59.50 | 55.43 | 56.04 |
| 18.0 | 56.09 | 56.45 | 55.82 | 59.88 | 138.81 | 147.95 | 147.33 | 59.87 | 55.76 | 56.36 |
| 19.0 | 56.33 | 56.74 | 56.15 | 60.30 | 139.83 | 149.15 | 148.47 | 60.28 | 56.09 | 56.61 |
| 20.0 | 56.58 | 57.03 | 56.51 | 60.77 | 141.46 | 151.00 | 150.26 | 60.75 | 56.41 | 56.83 |
| 21.0 | 56.82 | 57.32 | 56.86 | 61.16 | 141.51 | 151.15 | 150.35 | 61.14 | 56.75 | 57.09 |
| 22.0 | 57.06 | 57.62 | 57.23 | 61.59 | 142.22 | 152.01 | 151.16 | 61.57 | 57.13 | 57.42 |
| 23.0 | 57.30 | 57.92 | 57.60 | 62.02 | 142.74 | 152.65 | 151.75 | 62.00 | 57.51 | 57.71 |
| 24.0 | 57.54 | 58.22 | 57.98 | 62.48 | 143.65 | 153.71 | 152.76 | 62.46 | 57.87 | 57.97 |
| 25.0 | 57.78 | 58.51 | 58.36 | 62.87 | 143.32 | 153.45 | 152.44 | 62.85 | 58.26 | 58.28 |
| 26.0 | 58.01 | 58.81 | 58.75 | 63.34 | 144.06 | 154.32 | 153.26 | 63.31 | 58.69 | 58.65 |
| 27.0 | 58.24 | 59.10 | 59.15 | 63.76 | 143.96 | 154.29 | 153.18 | 63.74 | 59.10 | 58.99 |
| 28.0 | 58.47 | 59.40 | 59.55 | 64.22 | 144.50 | 154.95 | 153.79 | 64.20 | 59.48 | 59.23 |
| 29.0 | 58.68 | 59.68 | 59.95 | 64.63 | 144.09 | 154.58 | 153.37 | 64.60 | 59.85 | 59.43 |
| 30.0 | 58.90 | 59.96 | 60.34 | 65.01 | 143.26 | 153.76 | 152.50 | 64.98 | 60.24 | 59.69 |
| 31.0 | 59.11 | 60.24 | 60.74 | 65.44 | 143.28 | 153.83 | 152.53 | 65.41 | 60.66 | 60.01 |
| 32.0 | 59.31 | 60.52 | 61.14 | 65.86 | 143.11 | 153.70 | 152.36 | 65.83 | 61.06 | 60.28 |
| 33.0 | 59.51 | 60.79 | 61.55 | 66.32 | 143.29 | 153.95 | 152.57 | 66.28 | 61.45 | 60.51 |
| 33.5 | 59.52 | 60.82 | 61.66 | 66.36 | 146.91 | 157.65 | 156.30 | 66.33 | 61.57 | 60.56 |
| 35.0 | 59.38 | 60.50 | 61.29 | 62.30 | 66.20 | 70.18 | 68.62 | 62.27 | 61.19 | 60.31 |
| 37.0 | 59.56 | 60.75 | 61.75 | 62.68 | 66.04 | 69.78 | 68.30 | 62.66 | 61.66 | 60.57 |
| 39.0 | 59.68 | 60.94 | 62.12 | 63.01 | 65.98 | 69.47 | 68.09 | 62.98 | 62.01 | 60.69 |
| 41.0 | 59.74 | 61.05 | 62.41 | 63.29 | 65.94 | 69.20 | 67.90 | 63.26 | 62.32 | 60.84 |
| 43.0 | 59.75 | 61.11 | 62.64 | 63.52 | 65.90 | 68.93 | 67.73 | 63.49 | 62.55 | 60.89 |
| 45.0 | 59.70 | 61.10 | 62.77 | 63.66 | 65.88 | 68.74 | 67.60 | 63.64 | 62.75 | 61.02 |
| MAX | 59.75 | 61.11 | 62.77 | 66.36 | 146.91 | 157.65 | 156.30 | 66.33 | 62.75 | 61.02 |
| MIN | 51.67 | 51.67 | 51.67 | 51.77 | 51.76 | 51.76 | 51.76 | 51.77 | 51.67 | 51.67 |
| AVE | 56.77 | 57.38 | 57.35 | 60.20 | 111.77 | 118.59 | 117.82 | 60.18 | 57.27 | 57.21 |

Table 20: Temperature (°C) map of the east side of plate 6ZH-2 at EOC 146B (39.2 EFPD).

| Length of Plate (in) | Width of Plate (inches) | | | | | | | | | |
|----------------------|-------------------------|-------|-------|-------|--------|--------|--------|-------|-------|-------|
| | 0.00 | 0.08 | 0.16 | 0.25 | 0.50 | 1.00 | 1.50 | 2.00 | 2.08 | 2.16 |
| 0.0 | 51.67 | 51.67 | 51.67 | 51.80 | 51.76 | 51.76 | 51.76 | 51.80 | 51.67 | 51.67 |
| 1.0 | 52.87 | 52.70 | 52.22 | 51.92 | 51.79 | 51.79 | 51.79 | 51.89 | 52.17 | 52.59 |
| 3.0 | 53.27 | 53.04 | 52.41 | 52.02 | 51.84 | 51.84 | 51.84 | 51.96 | 52.30 | 52.80 |
| 5.0 | 53.66 | 53.38 | 52.59 | 52.12 | 51.90 | 51.89 | 51.89 | 52.06 | 52.48 | 53.10 |
| 7.0 | 54.05 | 53.71 | 52.78 | 52.22 | 51.96 | 51.95 | 51.95 | 52.14 | 52.61 | 53.33 |
| 9.0 | 54.42 | 54.02 | 52.96 | 52.33 | 52.03 | 52.01 | 52.01 | 52.29 | 52.93 | 53.92 |
| 11.0 | 54.89 | 54.49 | 53.33 | 53.08 | 54.72 | 55.64 | 55.55 | 52.98 | 53.14 | 54.09 |
| 11.5 | 55.32 | 55.15 | 54.26 | 57.50 | 135.10 | 143.08 | 142.88 | 57.40 | 54.03 | 54.74 |
| 12.0 | 55.51 | 55.35 | 54.42 | 57.69 | 129.85 | 137.66 | 137.41 | 57.58 | 54.16 | 54.87 |
| 13.0 | 55.75 | 55.61 | 54.65 | 57.99 | 130.64 | 138.62 | 138.31 | 57.89 | 54.41 | 55.15 |
| 14.0 | 56.01 | 55.88 | 54.92 | 58.40 | 132.52 | 140.74 | 140.37 | 58.29 | 54.67 | 55.42 |
| 15.0 | 56.27 | 56.16 | 55.20 | 58.81 | 134.14 | 142.60 | 142.16 | 58.69 | 54.91 | 55.62 |
| 16.0 | 56.53 | 56.45 | 55.51 | 59.24 | 135.94 | 144.63 | 144.14 | 59.11 | 55.19 | 55.85 |
| 17.0 | 56.80 | 56.75 | 55.83 | 59.67 | 137.34 | 146.25 | 145.70 | 59.58 | 55.64 | 56.44 |
| 18.0 | 57.06 | 57.04 | 56.16 | 60.08 | 138.23 | 147.31 | 146.69 | 60.03 | 56.05 | 56.87 |
| 19.0 | 57.32 | 57.34 | 56.50 | 60.48 | 138.81 | 148.04 | 147.37 | 60.40 | 56.31 | 57.04 |
| 20.0 | 57.59 | 57.64 | 56.86 | 60.94 | 140.07 | 149.49 | 148.75 | 60.80 | 56.54 | 57.09 |
| 21.0 | 57.84 | 57.94 | 57.22 | 61.34 | 140.37 | 149.91 | 149.12 | 61.20 | 56.87 | 57.30 |
| 22.0 | 58.09 | 58.25 | 57.60 | 61.77 | 140.96 | 150.64 | 149.79 | 61.64 | 57.26 | 57.63 |
| 23.0 | 58.34 | 58.54 | 57.97 | 62.17 | 140.86 | 150.62 | 149.72 | 62.03 | 57.62 | 57.92 |
| 24.0 | 58.59 | 58.84 | 58.35 | 62.59 | 141.04 | 150.90 | 149.94 | 62.44 | 57.97 | 58.16 |
| 25.0 | 58.83 | 59.14 | 58.74 | 63.05 | 141.71 | 151.71 | 150.70 | 62.90 | 58.38 | 58.53 |
| 26.0 | 59.06 | 59.44 | 59.14 | 63.50 | 142.16 | 152.26 | 151.20 | 63.39 | 58.90 | 59.09 |
| 27.0 | 59.29 | 59.73 | 59.54 | 63.96 | 142.63 | 152.84 | 151.73 | 63.90 | 59.38 | 59.54 |
| 28.0 | 59.51 | 60.02 | 59.94 | 64.40 | 142.76 | 153.06 | 151.90 | 64.29 | 59.68 | 59.65 |
| 29.0 | 59.72 | 60.30 | 60.33 | 64.81 | 142.54 | 152.89 | 151.69 | 64.66 | 59.95 | 59.67 |
| 30.0 | 59.92 | 60.57 | 60.73 | 65.22 | 142.08 | 152.46 | 151.21 | 65.06 | 60.33 | 59.88 |
| 31.0 | 60.12 | 60.84 | 61.13 | 65.66 | 142.17 | 152.62 | 151.32 | 65.51 | 60.76 | 60.21 |
| 32.0 | 60.31 | 61.11 | 61.53 | 66.06 | 141.45 | 151.90 | 150.57 | 65.91 | 61.15 | 60.46 |
| 33.0 | 60.49 | 61.37 | 61.94 | 66.54 | 142.05 | 152.59 | 151.22 | 66.37 | 61.51 | 60.65 |
| 33.5 | 60.50 | 61.40 | 62.06 | 66.65 | 146.97 | 157.68 | 156.34 | 66.49 | 61.66 | 60.77 |
| 35.0 | 60.32 | 61.06 | 61.64 | 62.61 | 66.36 | 70.30 | 68.74 | 62.48 | 61.39 | 60.66 |
| 37.0 | 60.44 | 61.28 | 62.09 | 63.00 | 66.21 | 69.90 | 68.44 | 62.87 | 61.84 | 60.89 |
| 39.0 | 60.49 | 61.42 | 62.45 | 63.32 | 66.16 | 69.61 | 68.23 | 63.17 | 62.11 | 60.85 |
| 41.0 | 60.48 | 61.49 | 62.72 | 63.59 | 66.12 | 69.35 | 68.06 | 63.45 | 62.42 | 60.97 |
| 43.0 | 60.41 | 61.50 | 62.93 | 63.81 | 66.10 | 69.09 | 67.89 | 63.67 | 62.61 | 61.01 |
| 45.0 | 60.29 | 61.45 | 63.04 | 63.94 | 66.08 | 68.90 | 67.76 | 63.89 | 62.94 | 61.36 |
| MAX | 60.50 | 61.50 | 63.04 | 66.65 | 146.97 | 157.68 | 156.34 | 66.49 | 62.94 | 61.36 |
| MIN | 51.67 | 51.67 | 51.67 | 51.80 | 51.76 | 51.76 | 51.76 | 51.80 | 51.67 | 51.67 |
| AVE | 57.62 | 57.89 | 57.66 | 60.39 | 110.96 | 117.69 | 116.92 | 60.28 | 57.40 | 57.45 |

Table 21: Temperature (°C) map of the west side of plate 6ZH-2 at EOC 146B (39.2 EFPD).

| Length of Plate (in) | Width of Plate (inches) | | | | | | | | | |
|----------------------|-------------------------|-------|-------|-------|--------|--------|--------|-------|-------|-------|
| | 0.00 | 0.08 | 0.16 | 0.25 | 0.50 | 1.00 | 1.50 | 2.00 | 2.08 | 2.16 |
| 0.0 | 51.67 | 51.67 | 51.67 | 51.79 | 51.76 | 51.76 | 51.76 | 51.79 | 51.67 | 51.67 |
| 1.0 | 53.24 | 53.13 | 52.44 | 51.90 | 51.79 | 51.79 | 51.79 | 51.88 | 52.25 | 52.94 |
| 3.0 | 53.73 | 53.58 | 52.69 | 52.00 | 51.85 | 51.85 | 51.85 | 51.96 | 52.37 | 53.00 |
| 5.0 | 54.20 | 54.00 | 52.94 | 52.10 | 51.92 | 51.91 | 51.91 | 52.07 | 52.55 | 53.28 |
| 7.0 | 54.66 | 54.42 | 53.18 | 52.21 | 51.99 | 51.98 | 51.98 | 52.16 | 52.73 | 53.62 |
| 9.0 | 55.10 | 54.81 | 53.42 | 52.32 | 52.07 | 52.05 | 52.06 | 52.30 | 53.26 | 54.92 |
| 11.0 | 55.62 | 55.32 | 53.81 | 53.09 | 54.76 | 55.68 | 55.59 | 53.02 | 53.26 | 54.44 |
| 11.5 | 56.01 | 55.93 | 54.66 | 57.51 | 135.13 | 143.10 | 142.90 | 57.44 | 54.13 | 54.96 |
| 12.0 | 56.20 | 56.13 | 54.81 | 57.68 | 129.86 | 137.64 | 137.40 | 57.60 | 54.24 | 54.95 |
| 13.0 | 56.46 | 56.39 | 55.01 | 57.94 | 130.57 | 138.48 | 138.19 | 57.87 | 54.43 | 55.20 |
| 14.0 | 56.73 | 56.66 | 55.23 | 58.29 | 132.34 | 140.45 | 140.12 | 58.22 | 54.66 | 55.49 |
| 15.0 | 57.00 | 56.94 | 55.47 | 58.64 | 133.84 | 142.13 | 141.76 | 58.55 | 54.84 | 55.70 |
| 16.0 | 57.27 | 57.22 | 55.72 | 59.00 | 135.51 | 143.98 | 143.58 | 58.90 | 55.08 | 55.96 |
| 17.0 | 57.54 | 57.51 | 55.98 | 59.35 | 136.78 | 145.41 | 144.96 | 59.29 | 55.53 | 56.96 |
| 18.0 | 57.81 | 57.79 | 56.24 | 59.69 | 137.52 | 146.27 | 145.79 | 59.64 | 56.05 | 57.74 |
| 19.0 | 58.06 | 58.06 | 56.51 | 60.02 | 137.96 | 146.80 | 146.28 | 59.95 | 56.05 | 57.53 |
| 20.0 | 58.32 | 58.34 | 56.79 | 60.39 | 139.07 | 148.05 | 147.50 | 60.28 | 56.08 | 57.02 |
| 21.0 | 58.58 | 58.62 | 57.07 | 60.71 | 139.23 | 148.28 | 147.69 | 60.60 | 56.33 | 57.08 |
| 22.0 | 58.81 | 58.88 | 57.34 | 61.06 | 139.68 | 148.81 | 148.18 | 60.95 | 56.60 | 57.26 |
| 23.0 | 59.04 | 59.13 | 57.62 | 61.37 | 139.42 | 148.58 | 147.92 | 61.26 | 56.86 | 57.48 |
| 24.0 | 59.28 | 59.40 | 57.90 | 61.69 | 139.45 | 148.66 | 147.97 | 61.57 | 57.13 | 57.77 |
| 25.0 | 59.48 | 59.64 | 58.19 | 62.06 | 139.98 | 149.27 | 148.55 | 61.94 | 57.42 | 58.17 |
| 26.0 | 59.69 | 59.88 | 58.47 | 62.41 | 140.27 | 149.63 | 148.87 | 62.32 | 57.95 | 59.23 |
| 27.0 | 59.89 | 60.12 | 58.75 | 62.77 | 140.59 | 150.01 | 149.23 | 62.70 | 58.55 | 60.04 |
| 28.0 | 60.08 | 60.34 | 59.03 | 63.11 | 140.57 | 150.03 | 149.21 | 63.02 | 58.49 | 59.60 |
| 29.0 | 60.26 | 60.55 | 59.30 | 63.43 | 140.20 | 149.66 | 148.82 | 63.29 | 58.53 | 59.02 |
| 30.0 | 60.42 | 60.76 | 59.57 | 63.73 | 139.58 | 149.03 | 148.16 | 63.59 | 58.79 | 59.08 |
| 31.0 | 60.58 | 60.95 | 59.84 | 64.07 | 139.52 | 149.00 | 148.10 | 63.93 | 59.10 | 59.30 |
| 32.0 | 60.73 | 61.15 | 60.11 | 64.36 | 138.64 | 148.08 | 147.16 | 64.23 | 59.33 | 59.37 |
| 33.0 | 60.86 | 61.33 | 60.37 | 64.74 | 139.10 | 148.60 | 147.65 | 64.59 | 59.58 | 59.51 |
| 33.5 | 60.85 | 61.33 | 60.44 | 64.81 | 144.00 | 153.67 | 152.75 | 64.66 | 59.69 | 59.77 |
| 35.0 | 60.66 | 60.96 | 59.94 | 60.63 | 63.54 | 66.46 | 65.32 | 60.51 | 59.36 | 60.16 |
| 37.0 | 60.69 | 61.04 | 60.23 | 60.94 | 63.38 | 66.11 | 65.03 | 60.82 | 59.68 | 60.28 |
| 39.0 | 60.64 | 61.05 | 60.44 | 61.22 | 63.34 | 65.90 | 64.89 | 61.07 | 59.77 | 59.62 |
| 41.0 | 60.54 | 61.00 | 60.58 | 61.44 | 63.34 | 65.73 | 64.77 | 61.31 | 59.96 | 59.59 |
| 43.0 | 60.37 | 60.88 | 60.66 | 61.63 | 63.34 | 65.56 | 64.67 | 61.48 | 60.07 | 59.66 |
| 45.0 | 60.17 | 60.72 | 60.68 | 61.74 | 63.34 | 65.43 | 64.59 | 61.65 | 60.59 | 60.61 |
| MAX | 60.86 | 61.33 | 60.68 | 64.81 | 144.00 | 153.67 | 152.75 | 64.66 | 60.59 | 60.61 |
| MIN | 51.67 | 51.67 | 51.67 | 51.79 | 51.76 | 51.76 | 51.76 | 51.79 | 51.67 | 51.67 |
| AVE | 58.14 | 58.26 | 57.11 | 59.51 | 109.60 | 115.83 | 115.27 | 59.42 | 56.57 | 57.24 |

9. REFERENCES

1. D.M. Wachs, “RERTR Fuel Development and Qualification Plan,” INL/EXT-05-01017, Revision 4, August 2009.
2. “Experiment Control Plan for the AFIP-6 Fuel Irradiation in the ATR,” PLN-3222 Rev 1, November 2009.
3. M. A. Lillo, G. S. Chang. “As-Run Neutronic Analysis for the AFIP-6 Experiment Irradiated in the Center Flux Trap of the ATR, Cycle 146B,” ECAR-1366 Rev 1. March 2011.
4. RERTR Project Personnel, “RERTR AFIP-6 Irradiation Experiment in the Advanced Test Reactor: As-Built Data Package,” AFIP-6, April 2010.
5. D.M. Wachs, “Hydraulic Testing of the AFIP Irradiation Vehicle for the ATR Center Flux Trap Position,” ECAR-99. October 2007.
6. R. G. Ambrosek, “RELAP Analysis for AFIP-2 Flow Resistor,” ECAR-126, January 2008.
7. P. E. Murray, “Validation of ABAQUS Standard 6.7-3 Heat Transfer”, ECAR-131, January 2008.
8. R. H. Perry, D. W. Green, “Perry’s Chemical Engineer’s Handbook,” 7th Edition, McGraw-Hill, 1997.

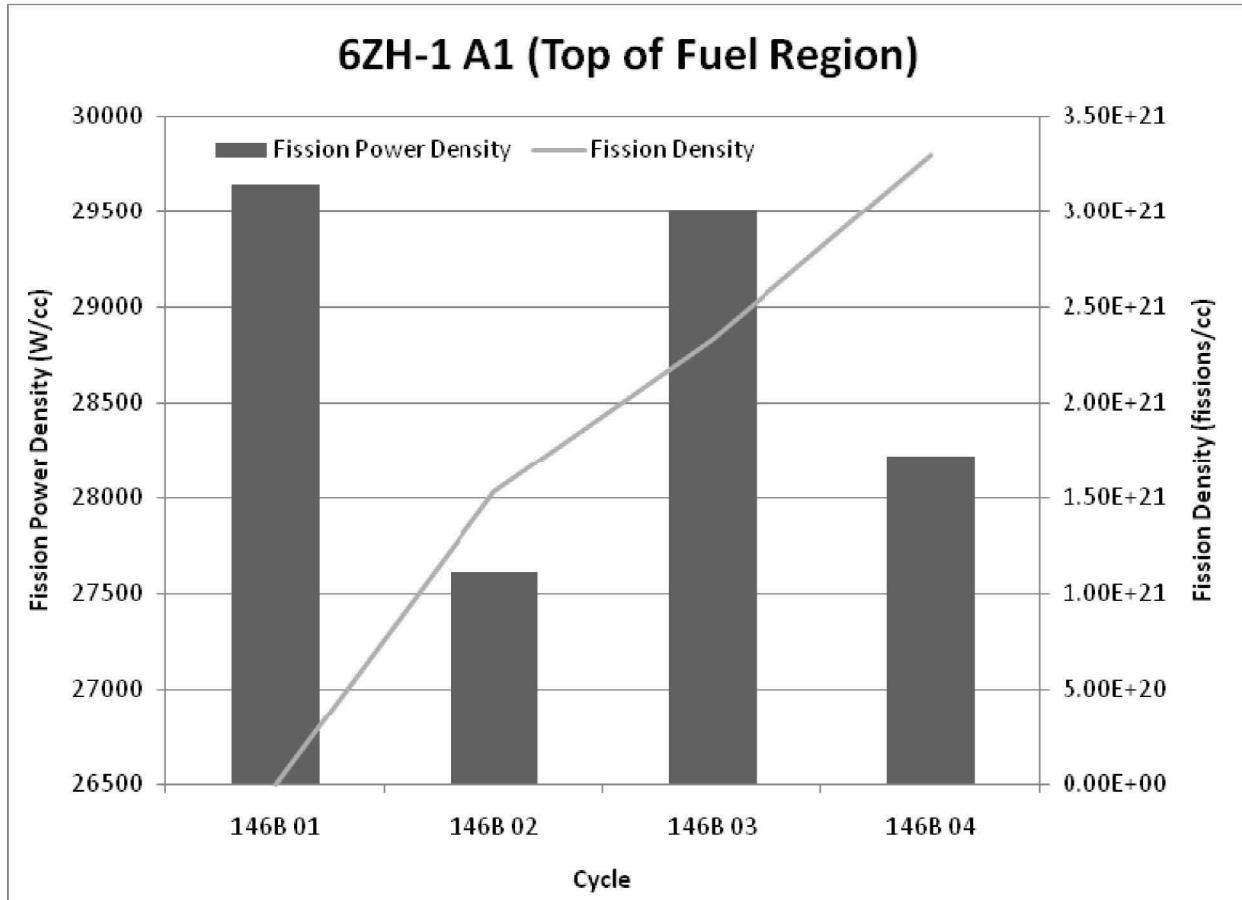
Appendix A

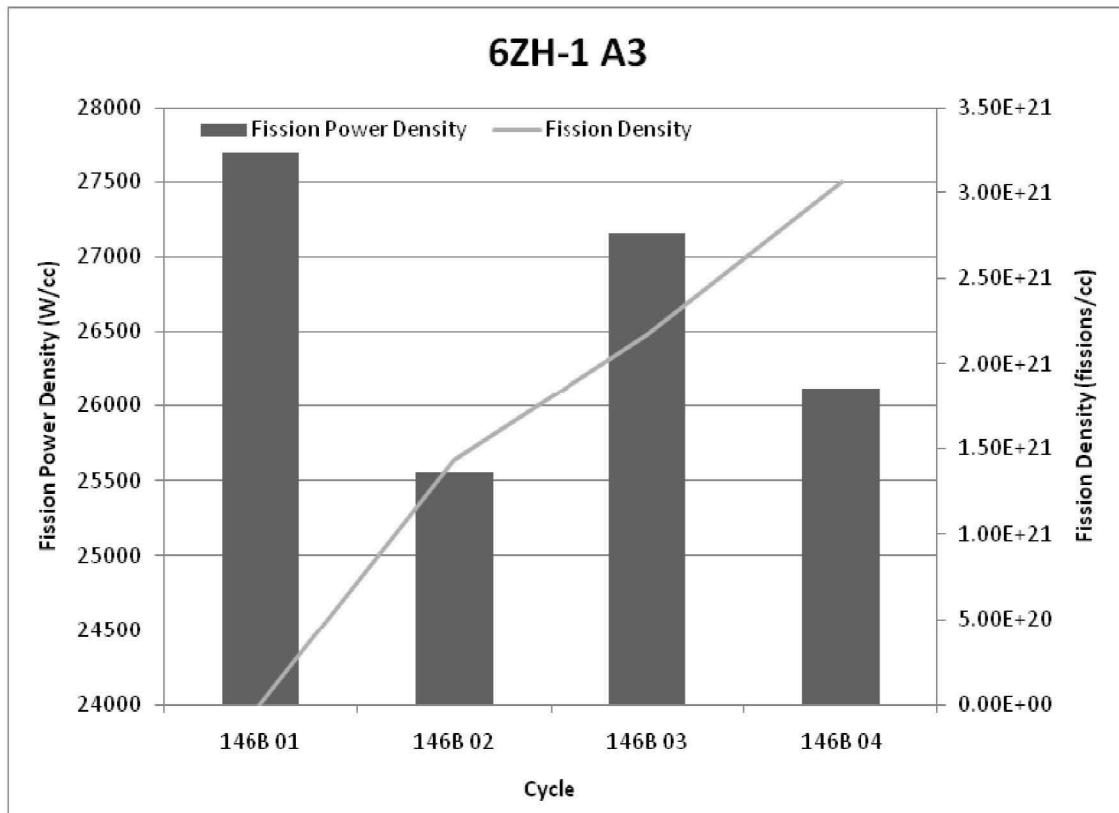
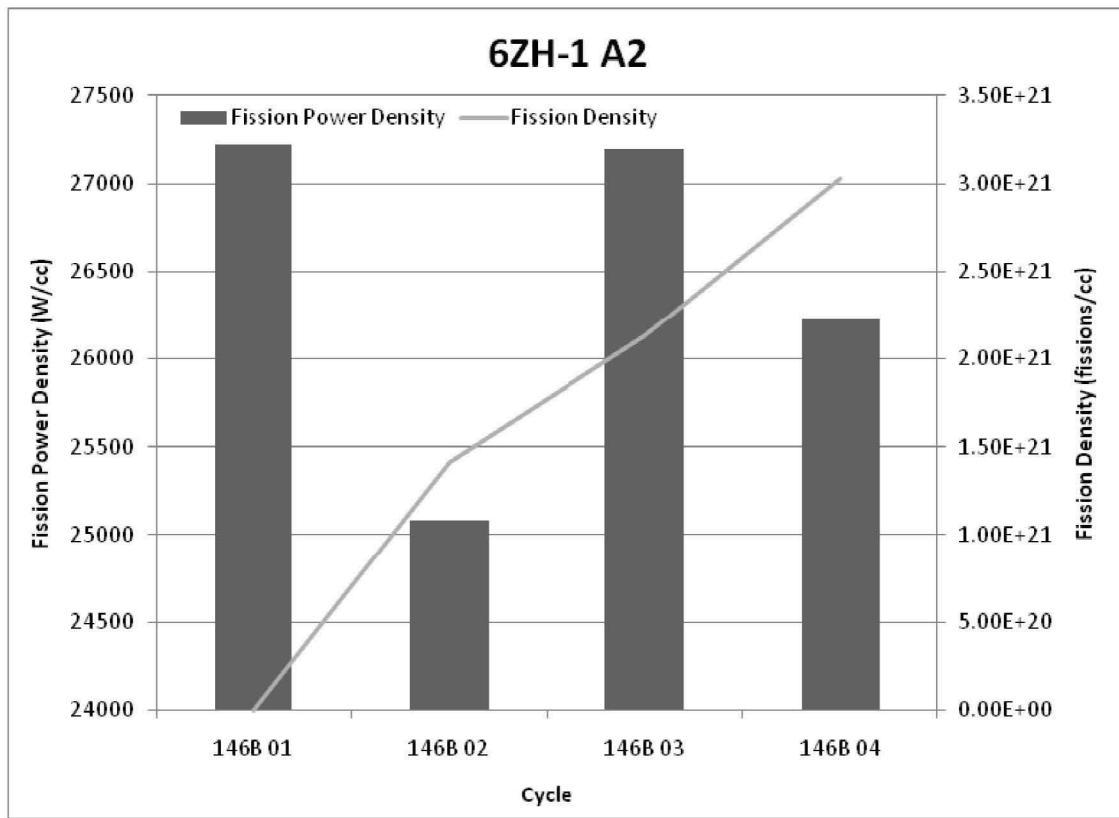
Individual Plate Power and Fission Density Plots

Appendix A

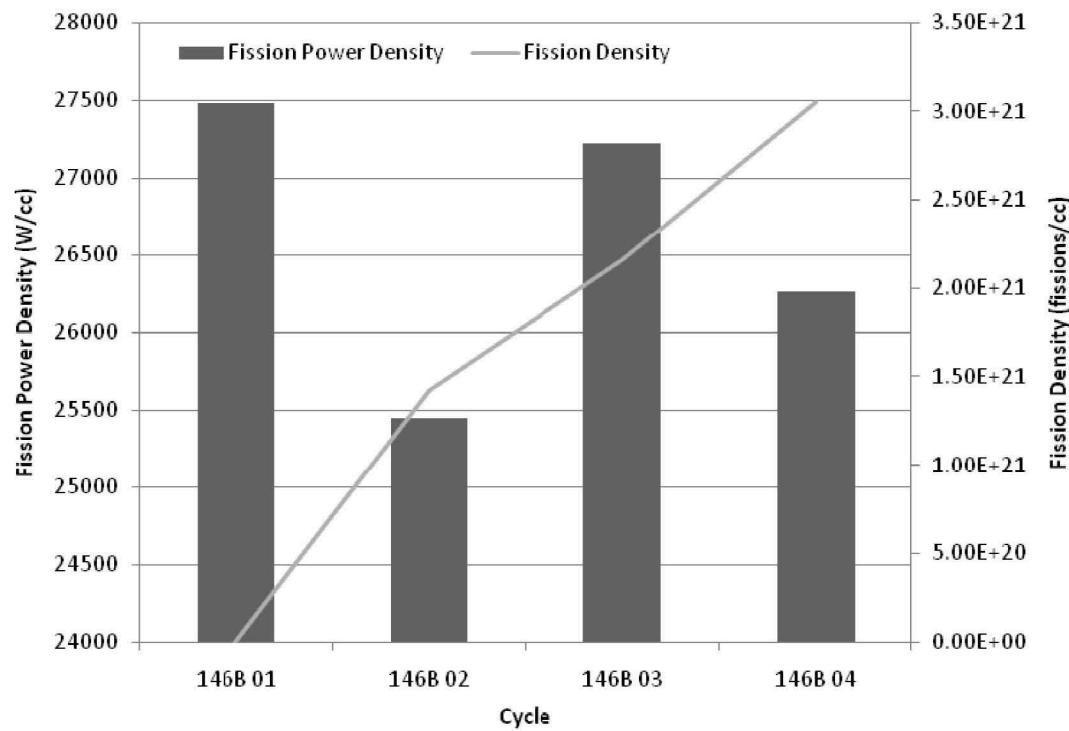
Power and Fission Density Plots

A-1. Plate 6ZH-1

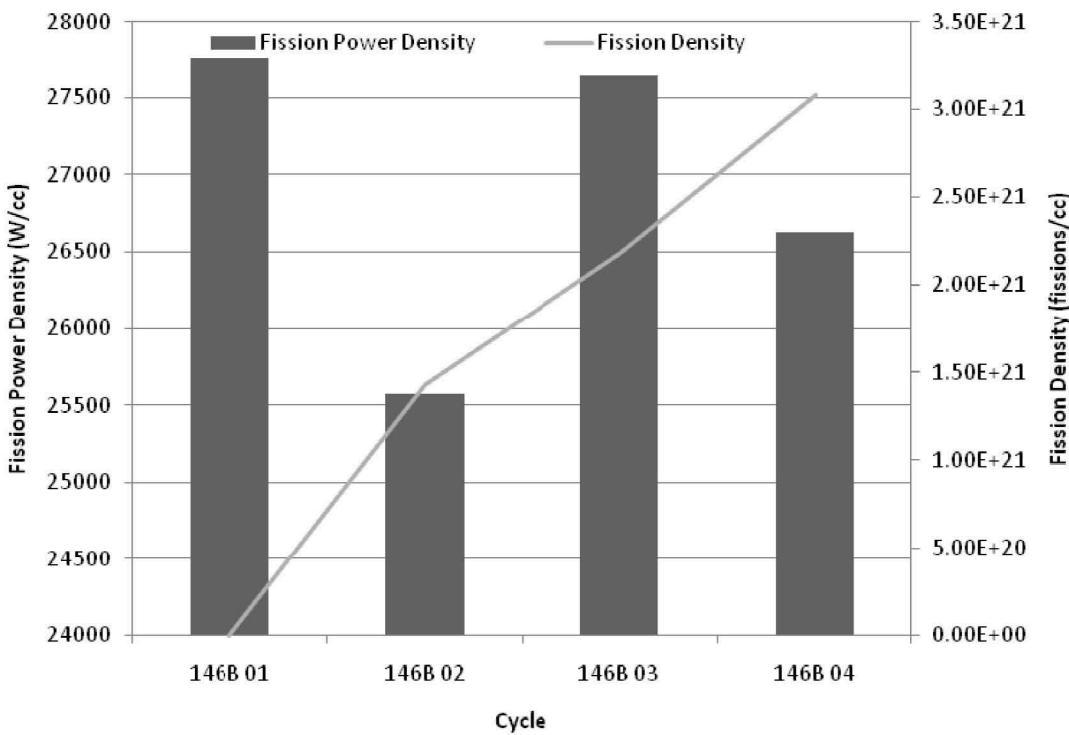


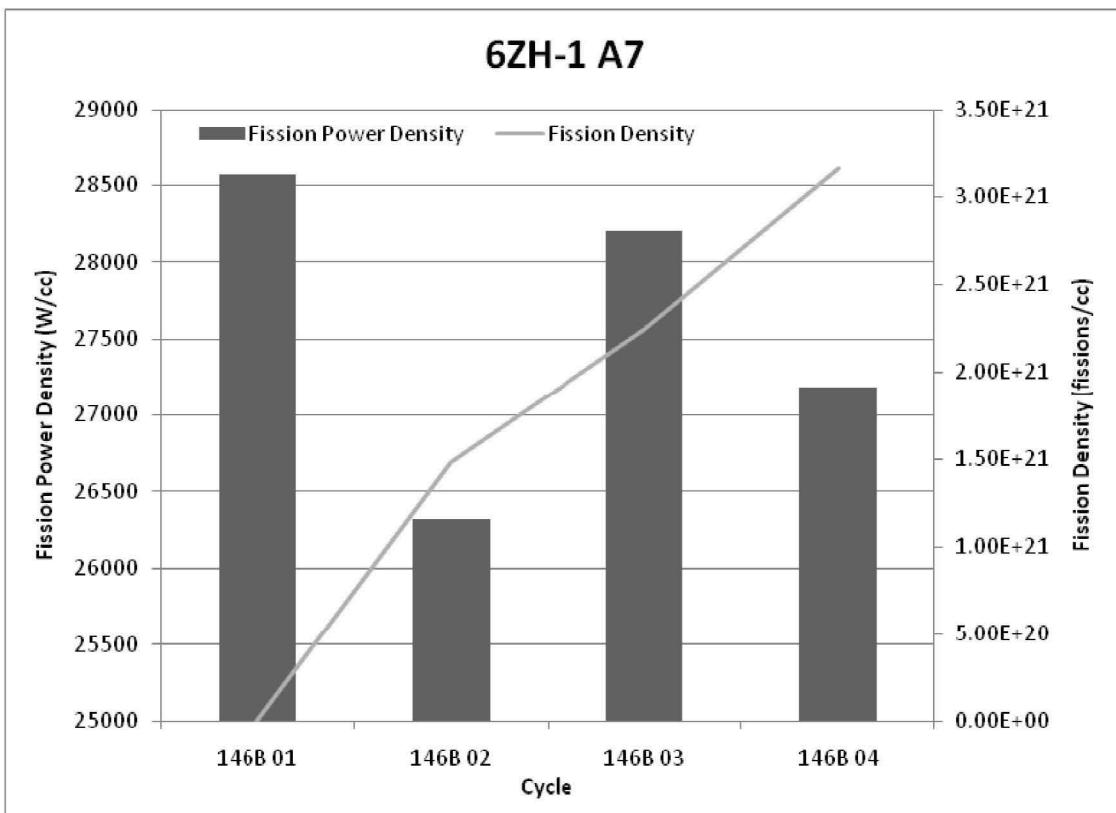
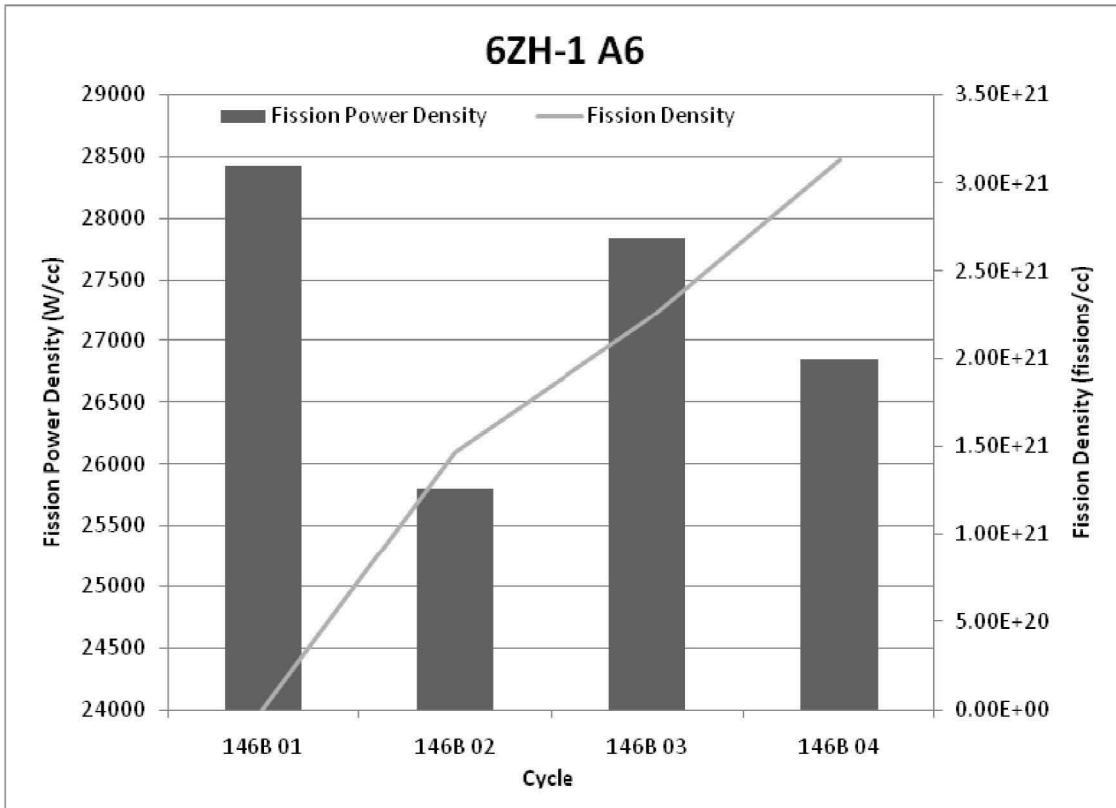


6ZH-1 A4

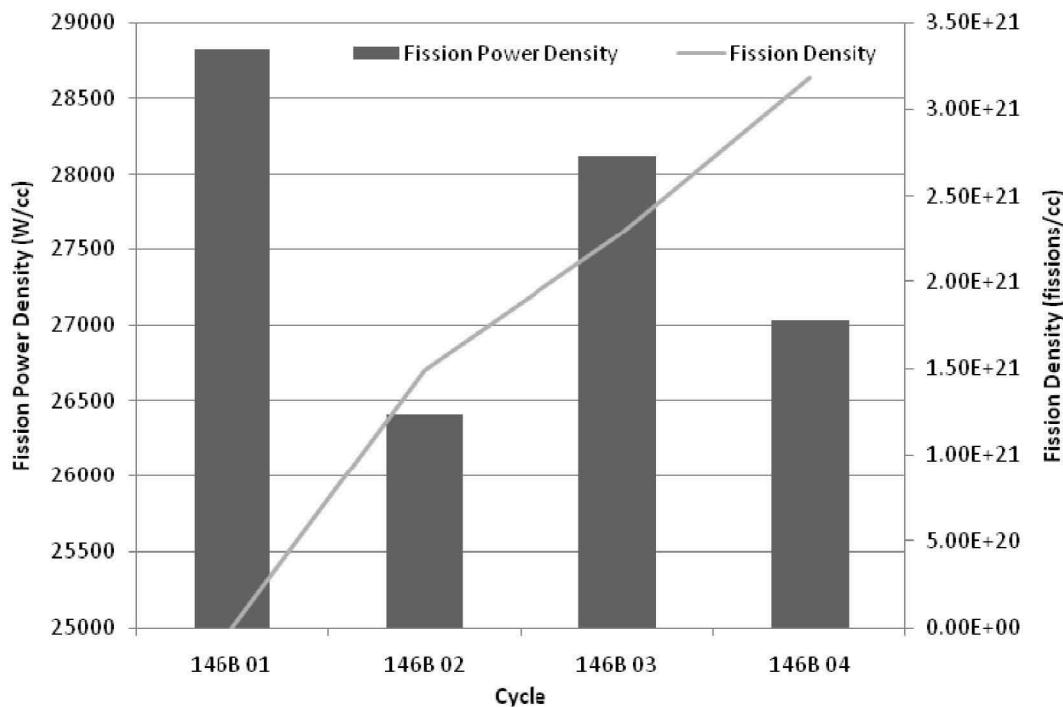


6ZH-1 A5

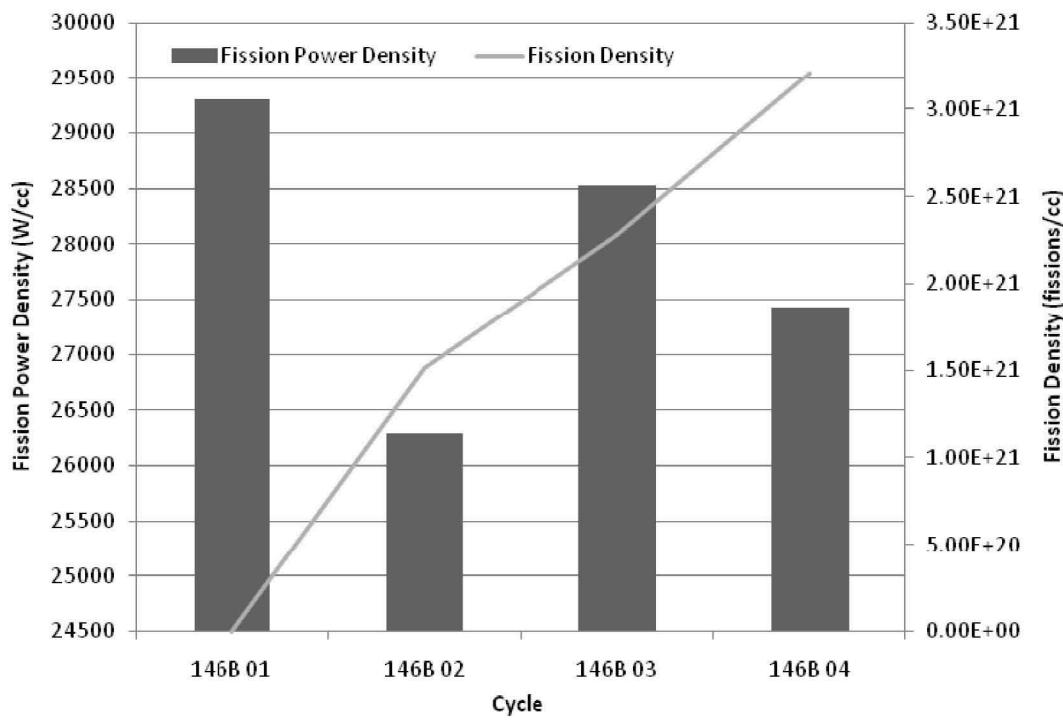




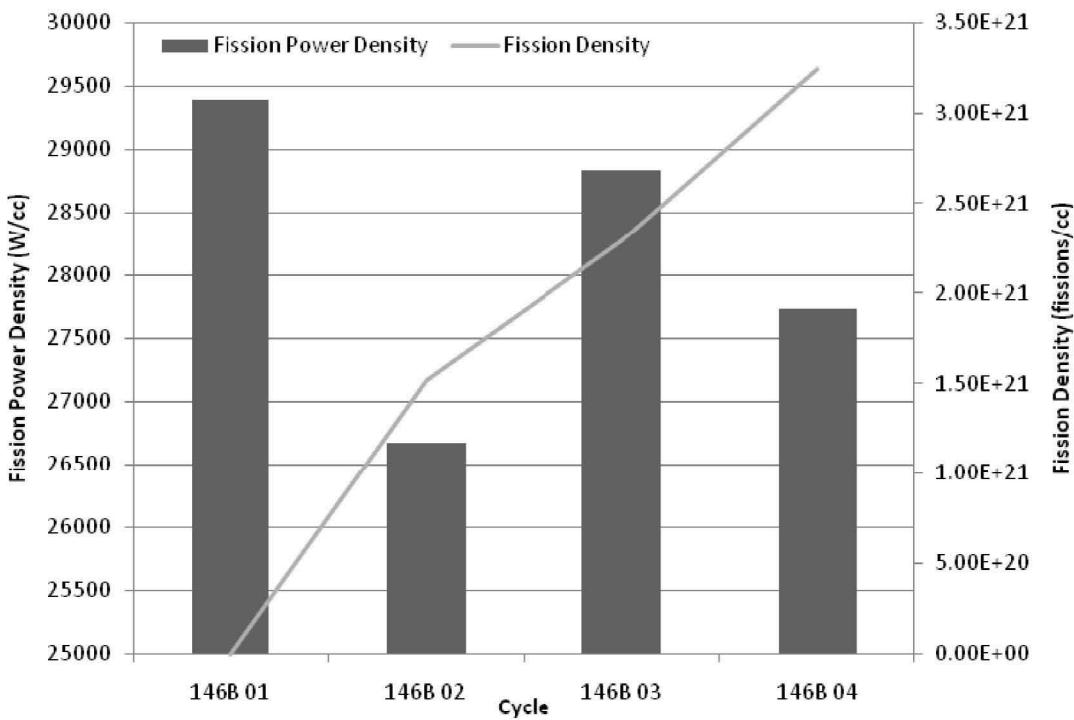
6ZH-1 A8



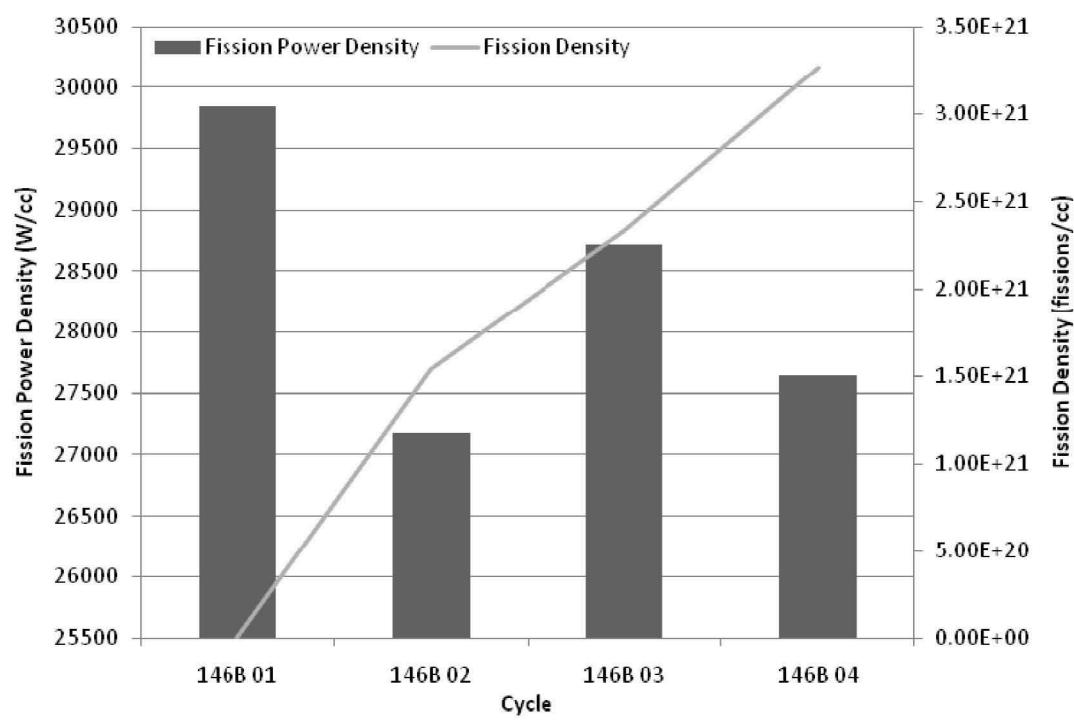
6ZH-1 A9



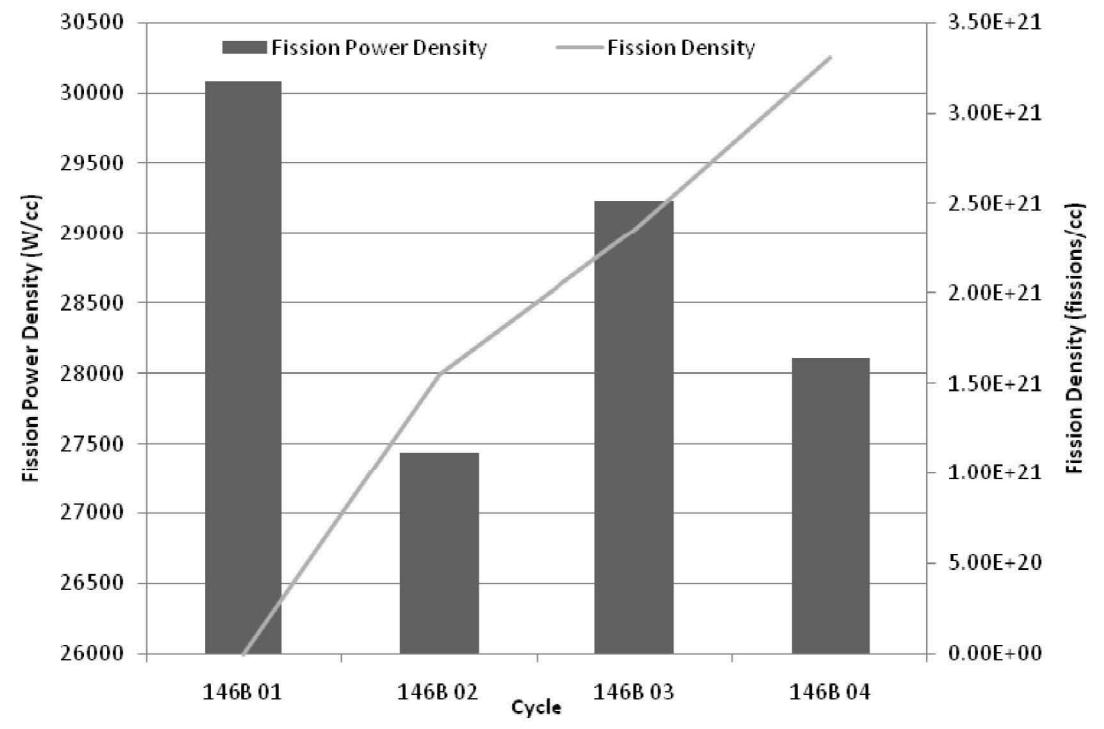
6ZH-1 A10



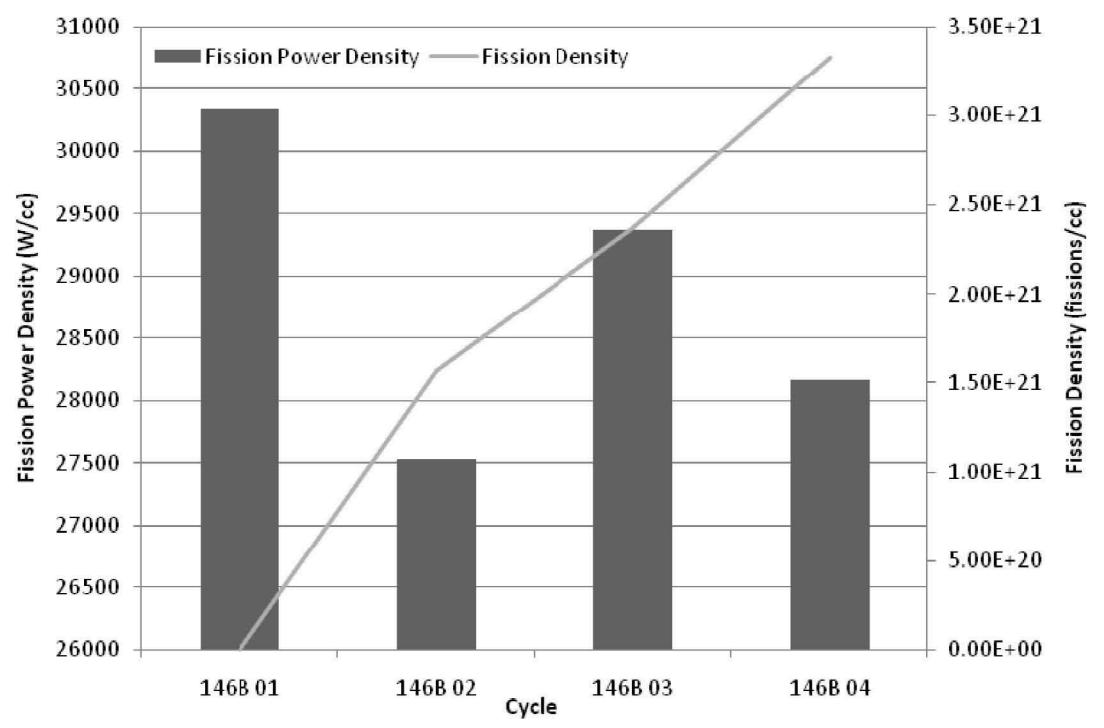
6ZH-1 A11



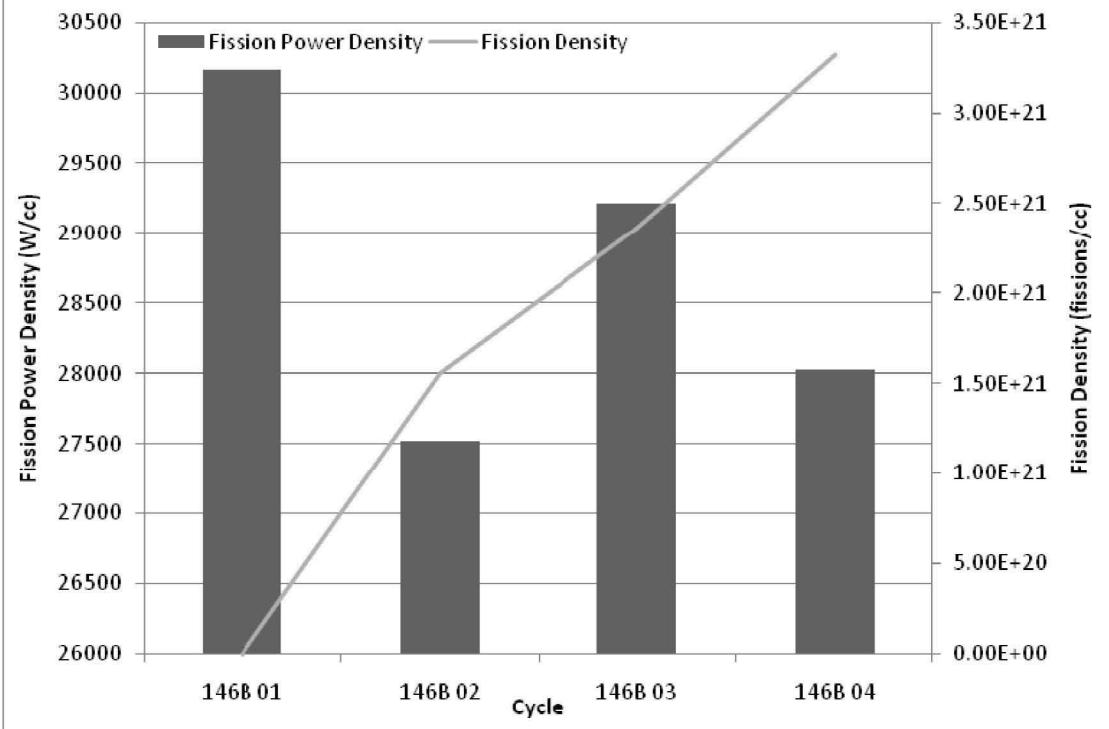
6ZH-1 A12



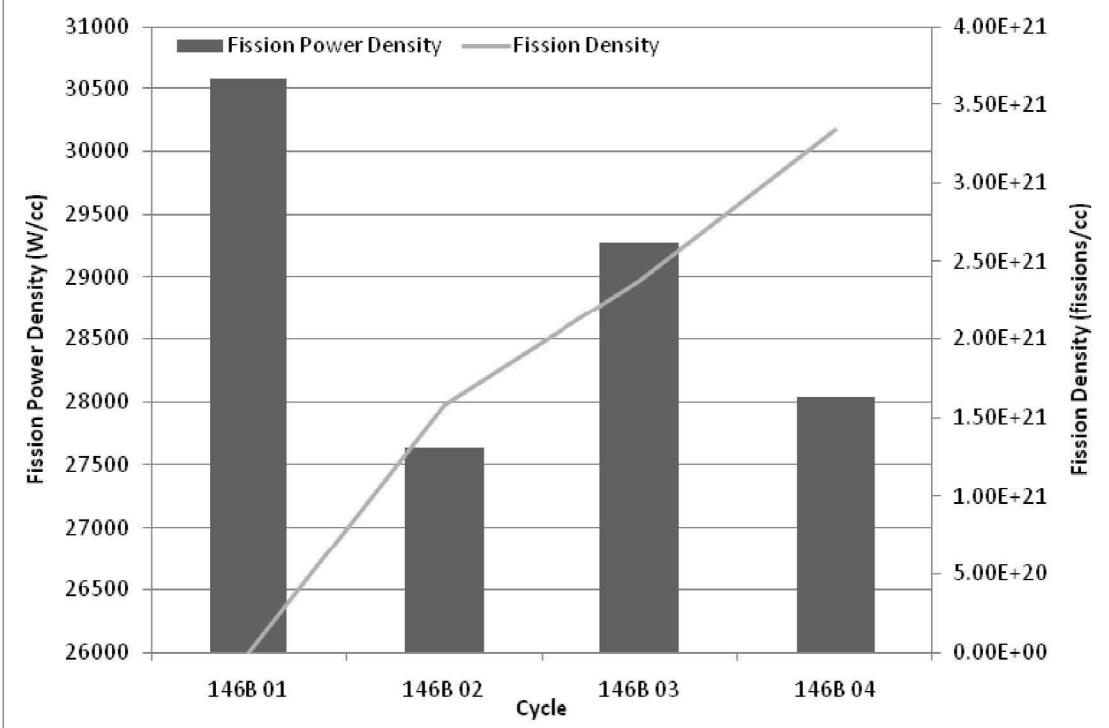
6ZH-1 A-13



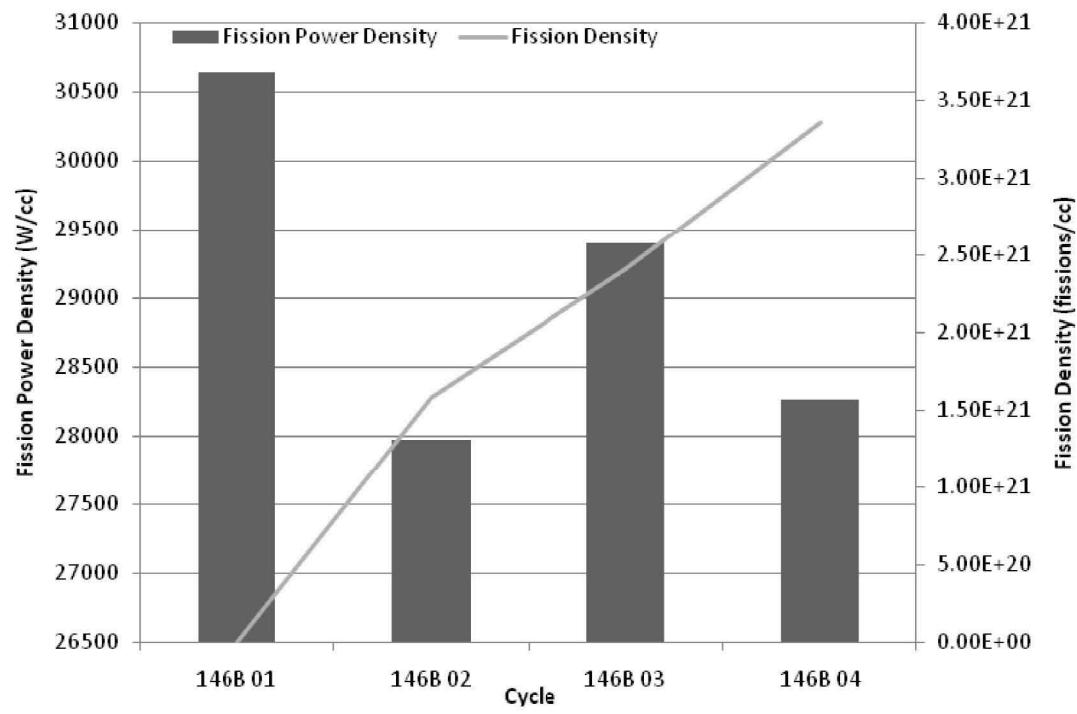
6ZH-1 A14



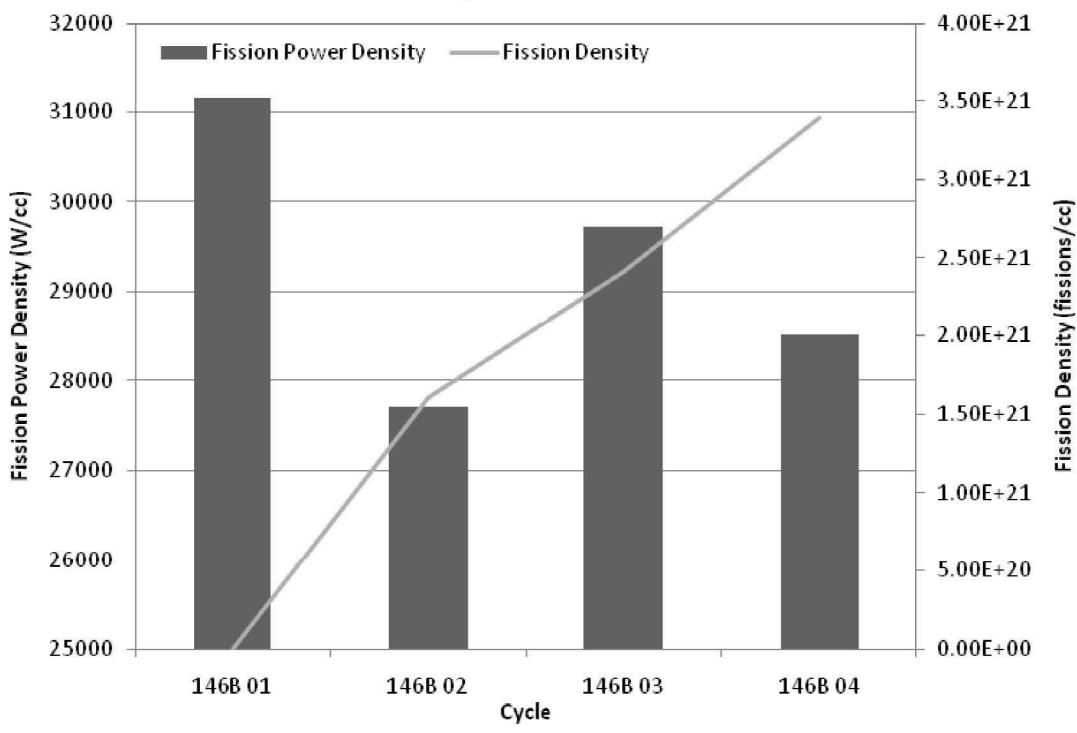
6ZH-1 A15



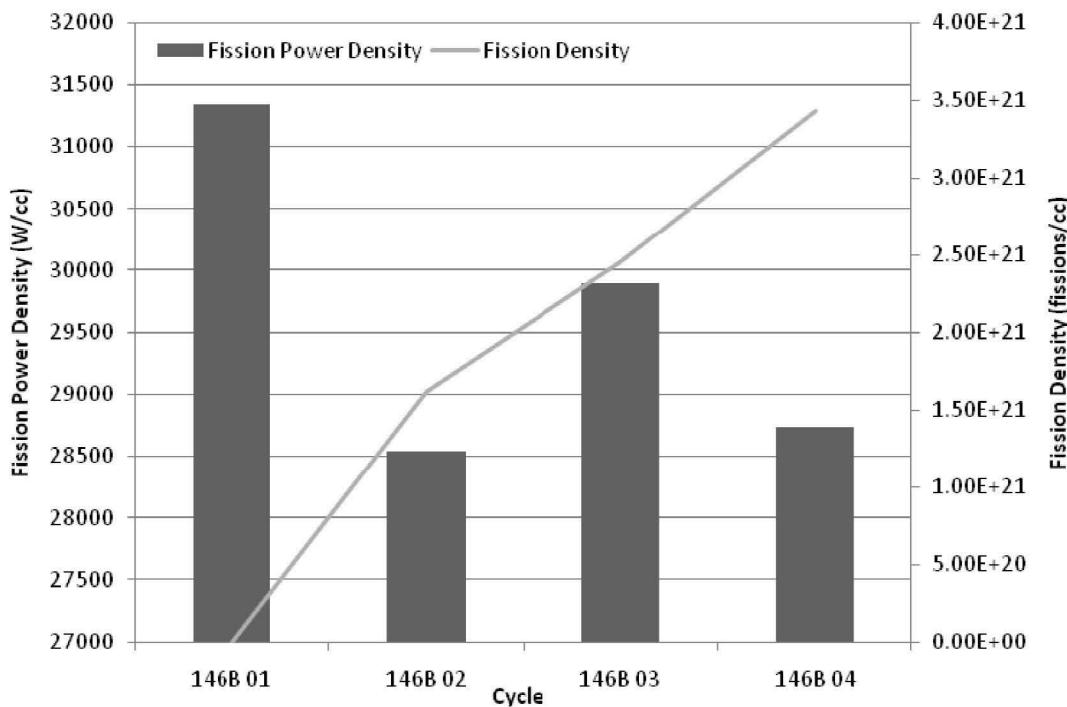
6ZH-1 A16



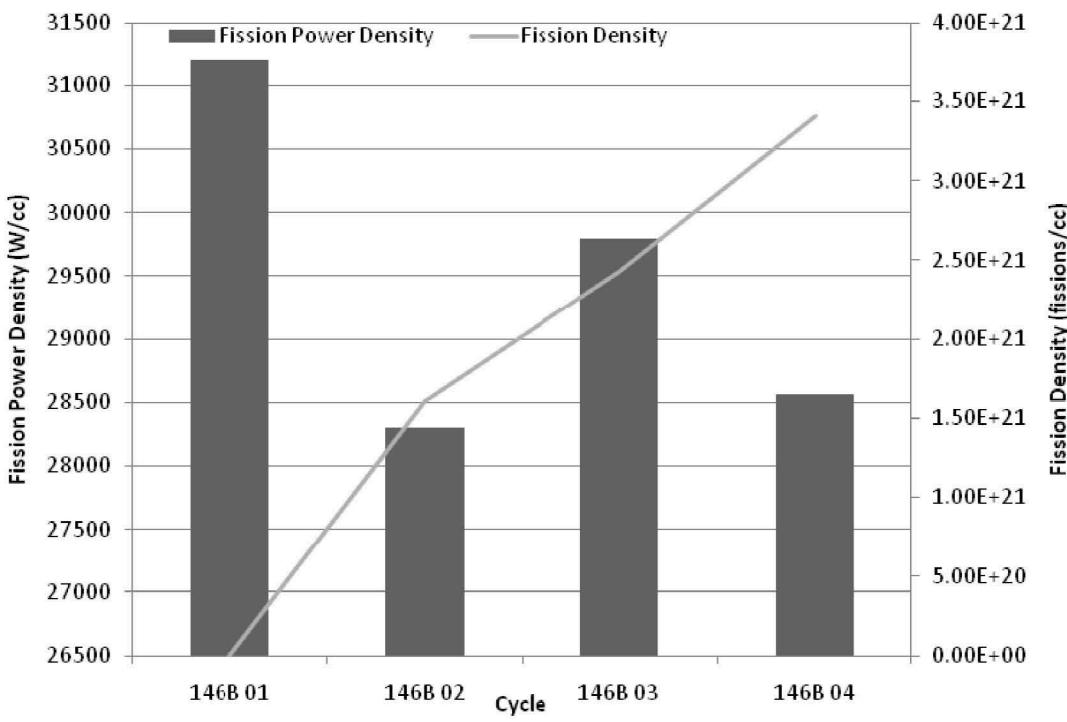
6ZH-1 A17



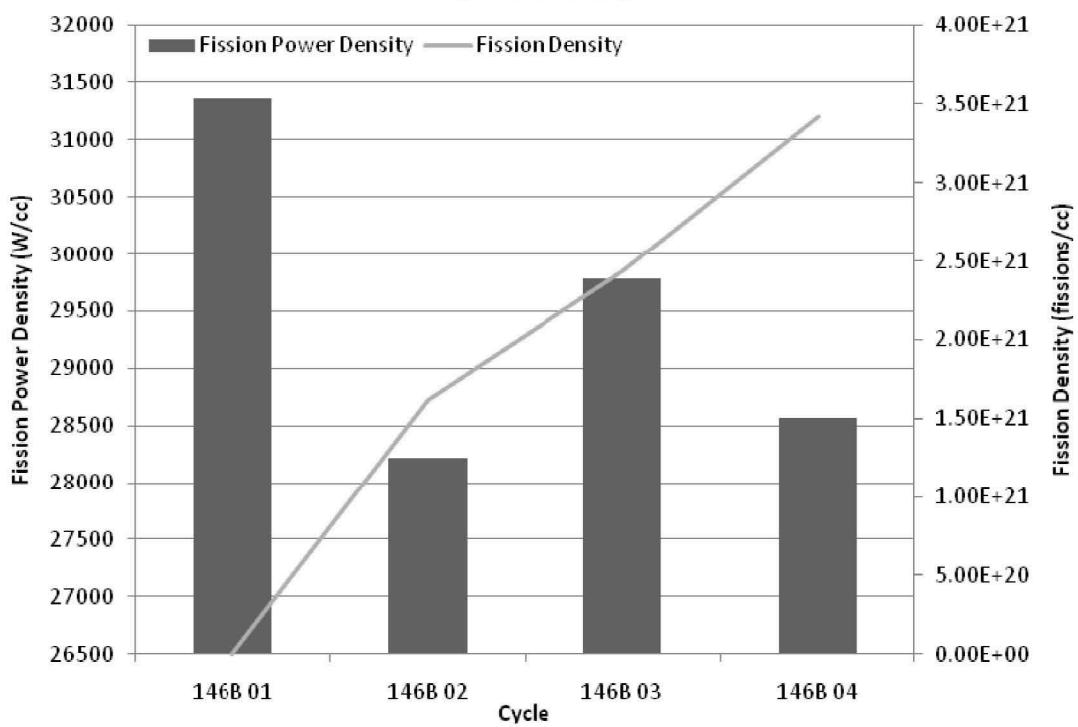
6ZH-1 A18



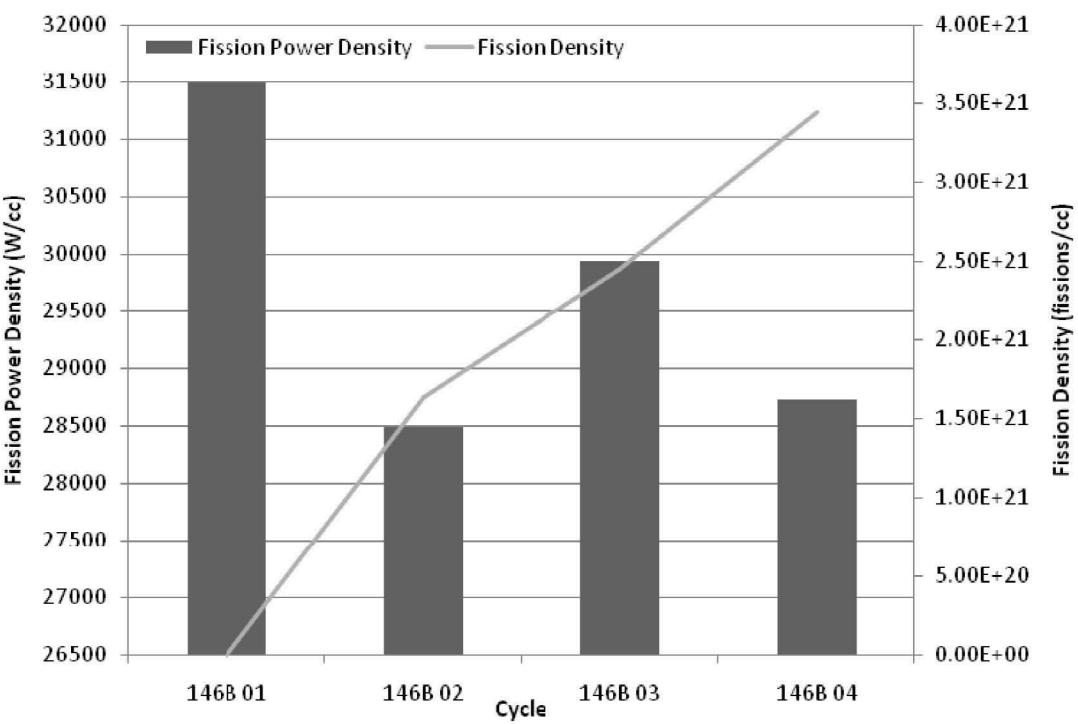
6ZH-1 A19

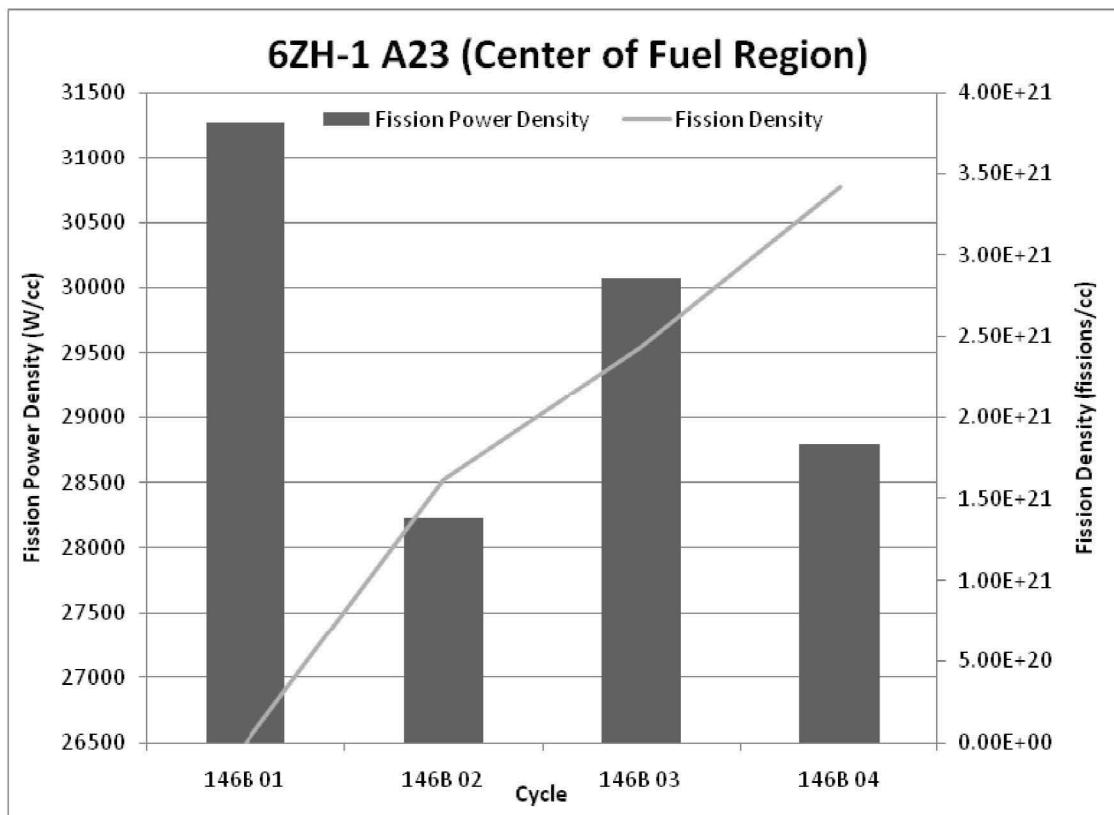
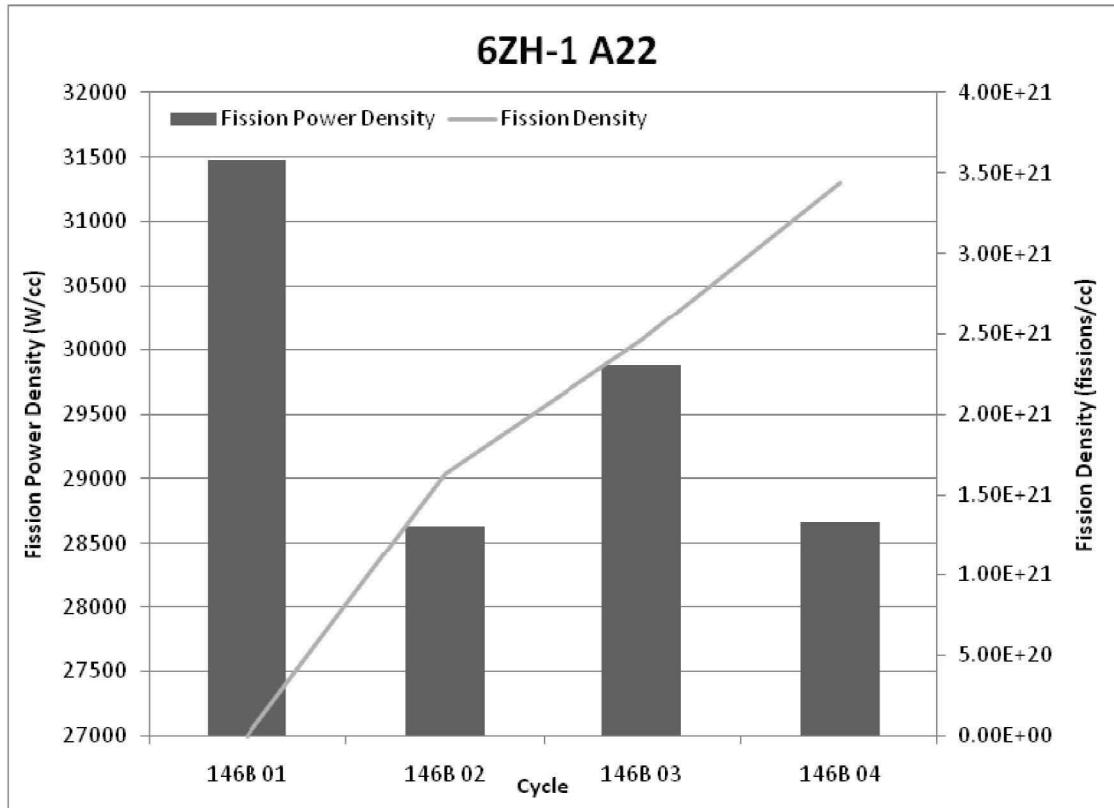


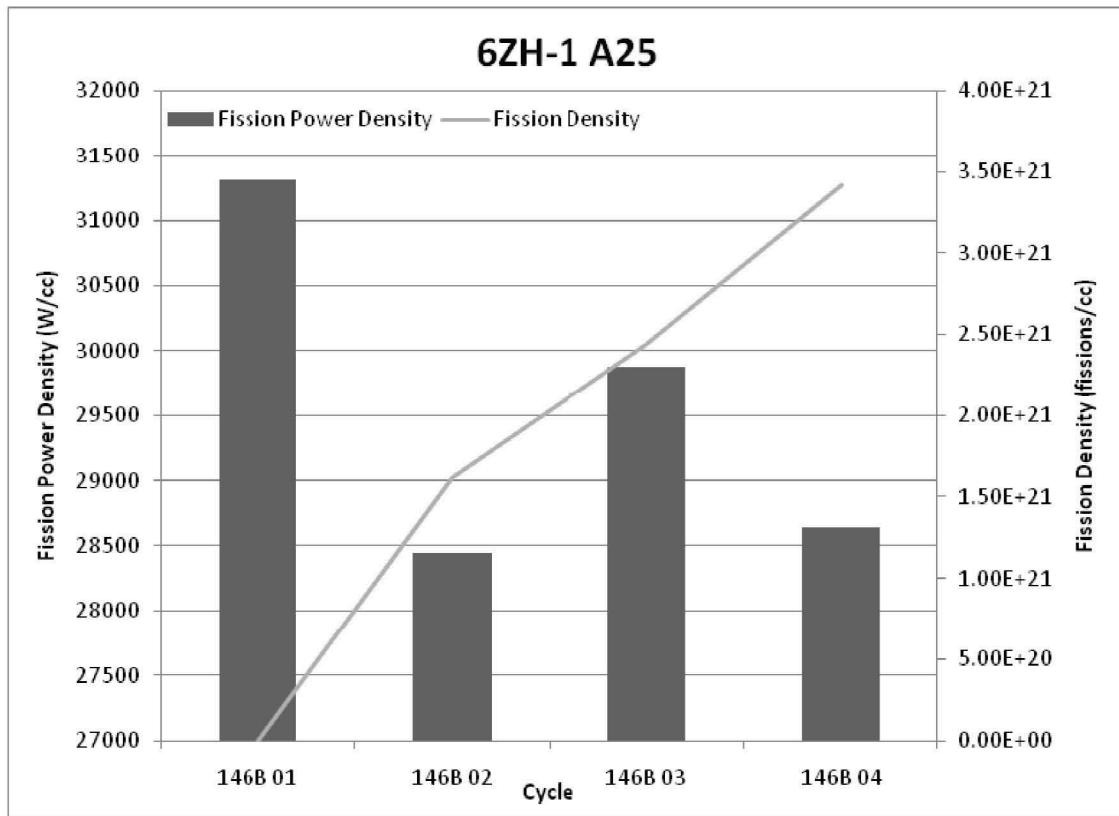
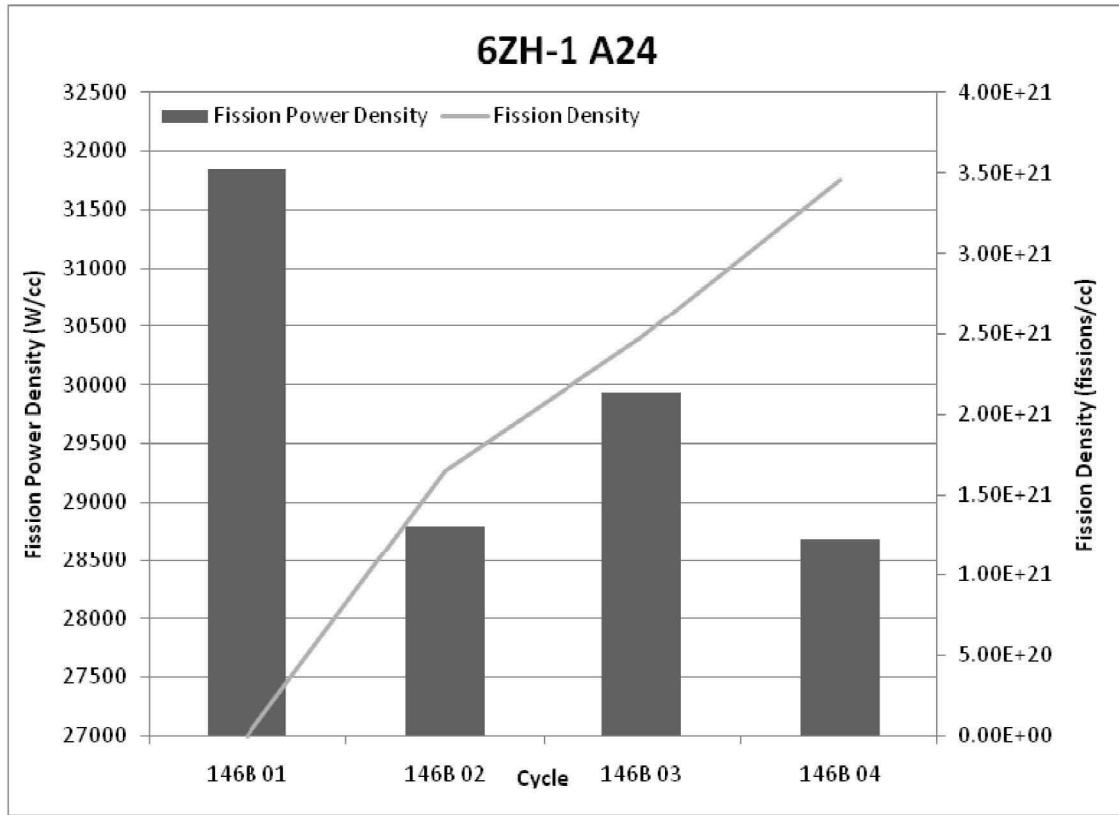
6ZH-1 A20

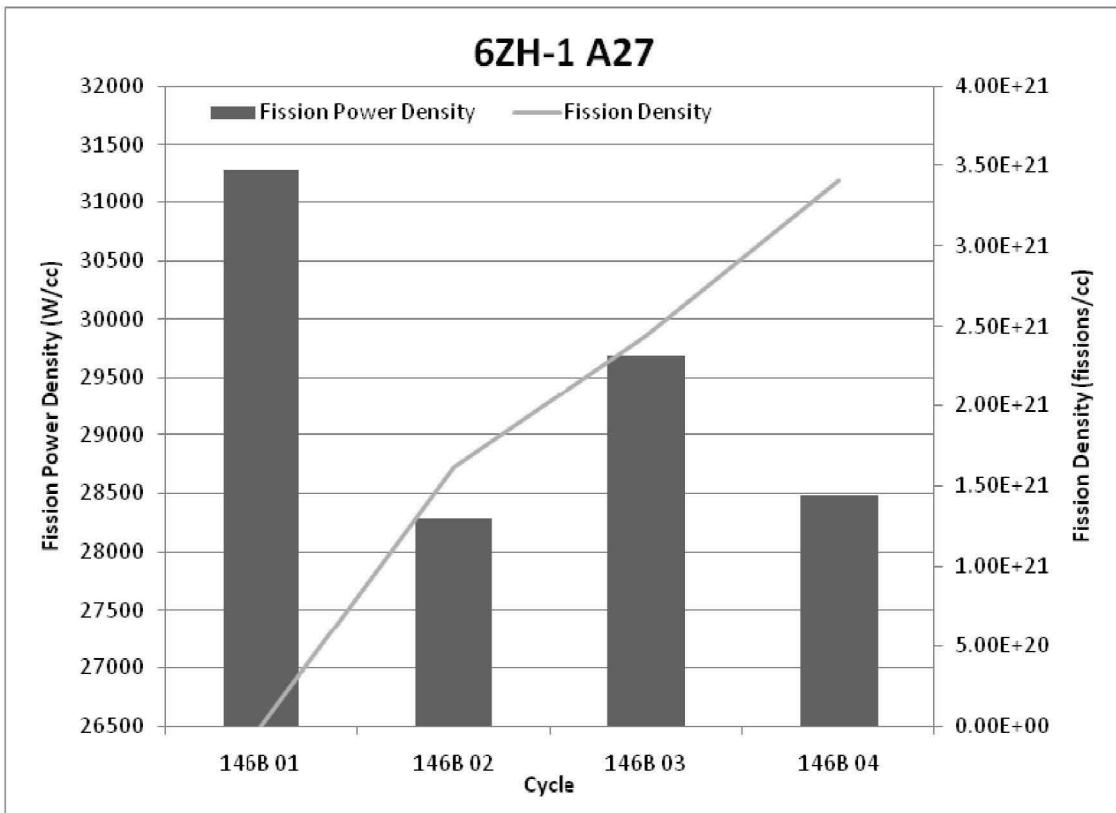
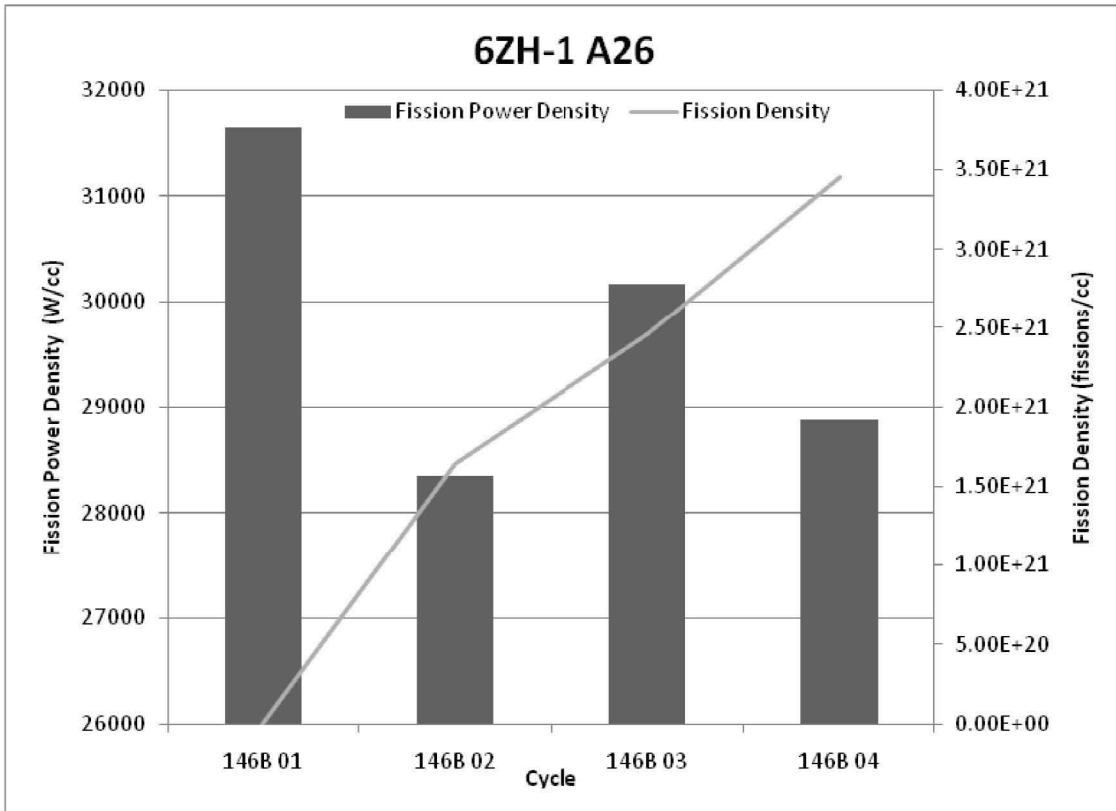


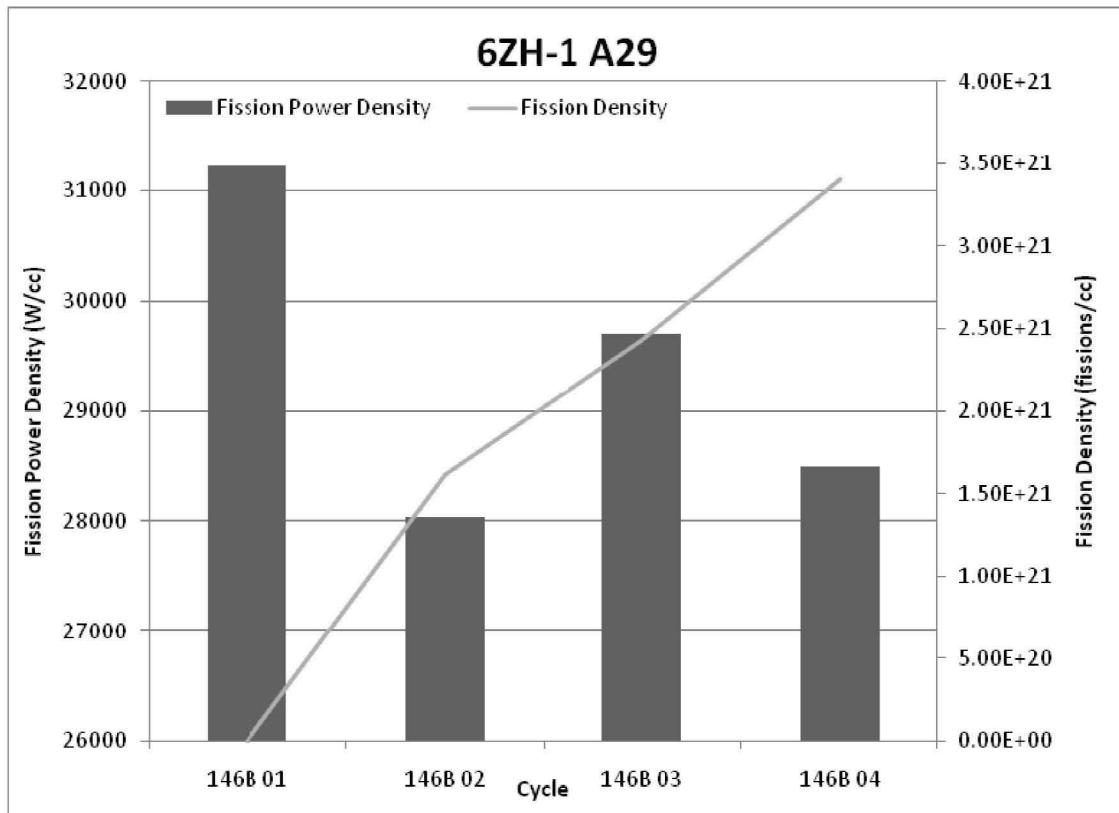
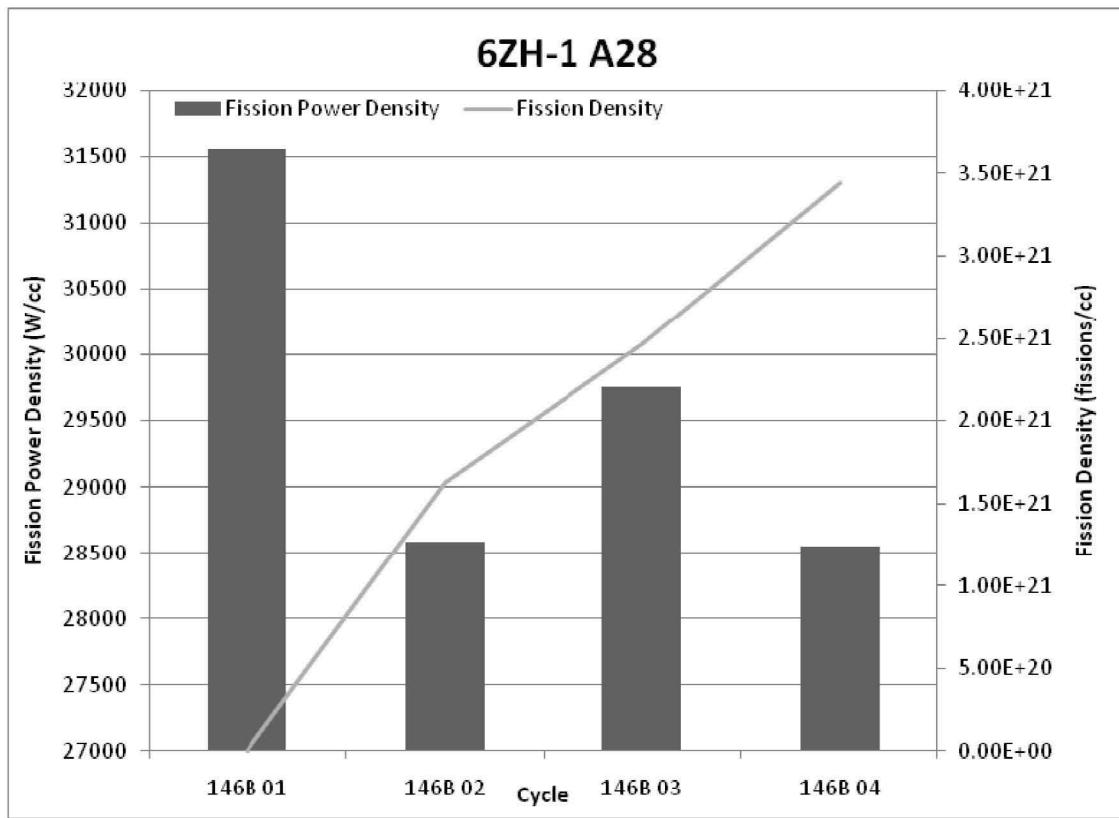
6ZH-1 A21

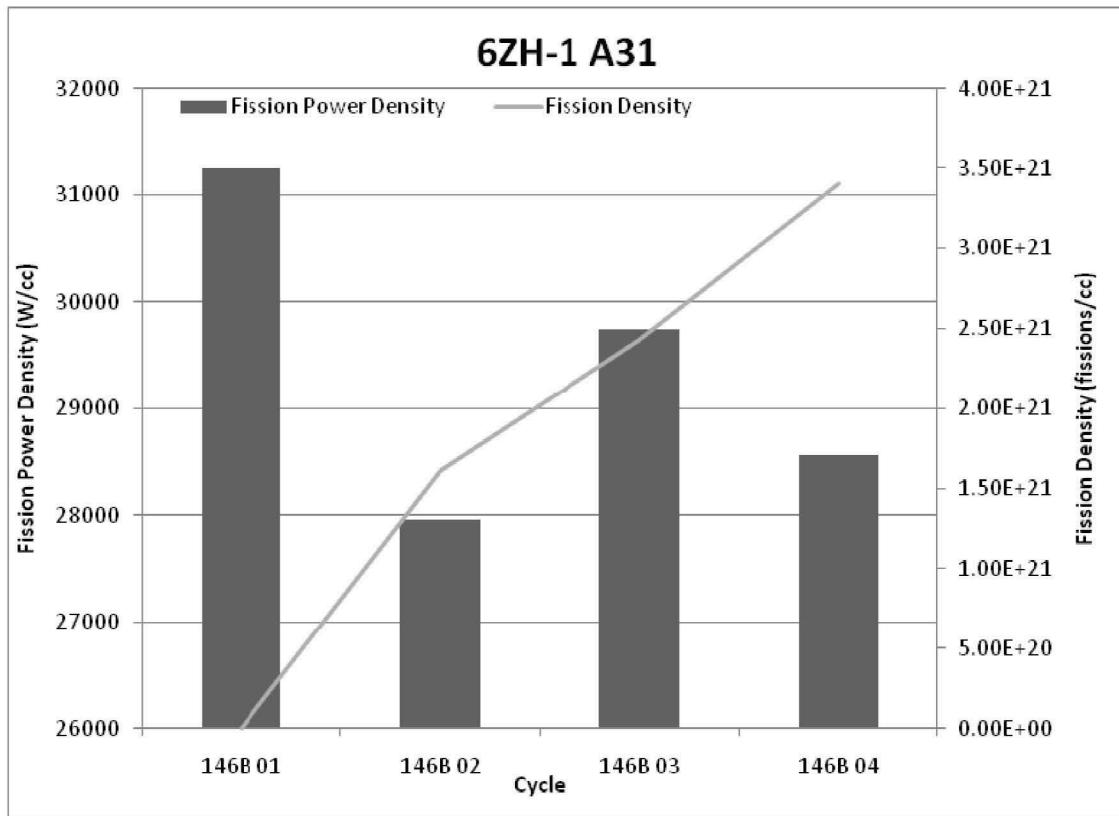
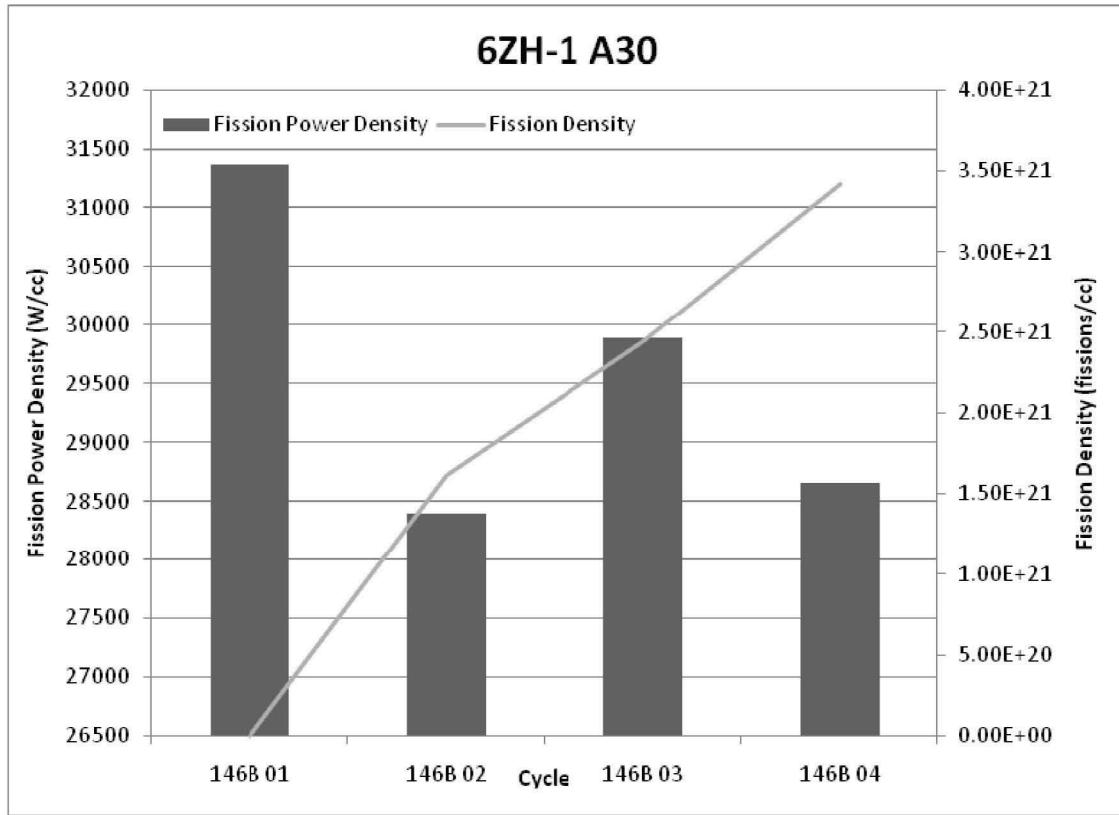




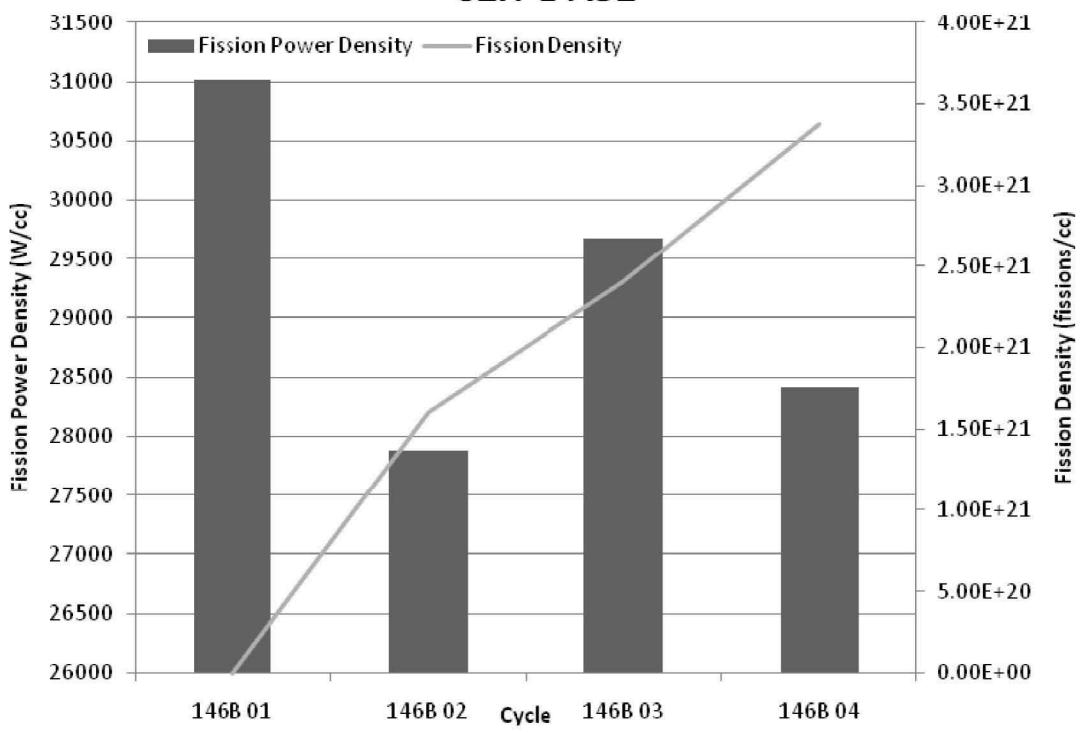




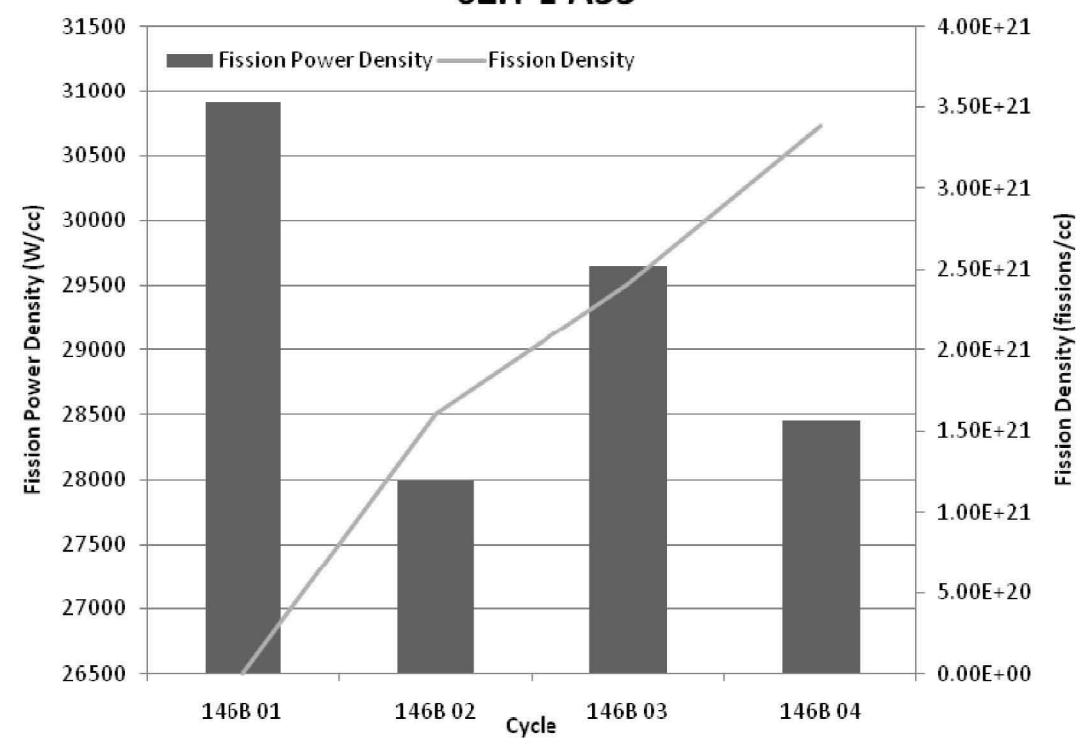




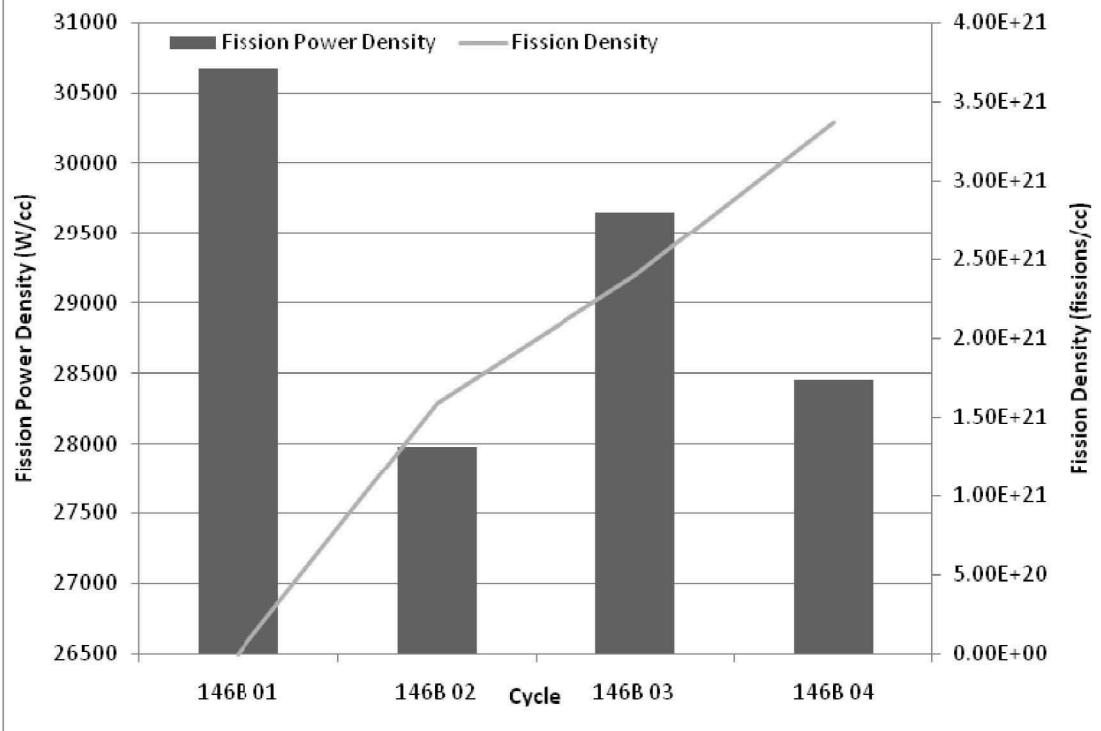
6ZH-1 A32



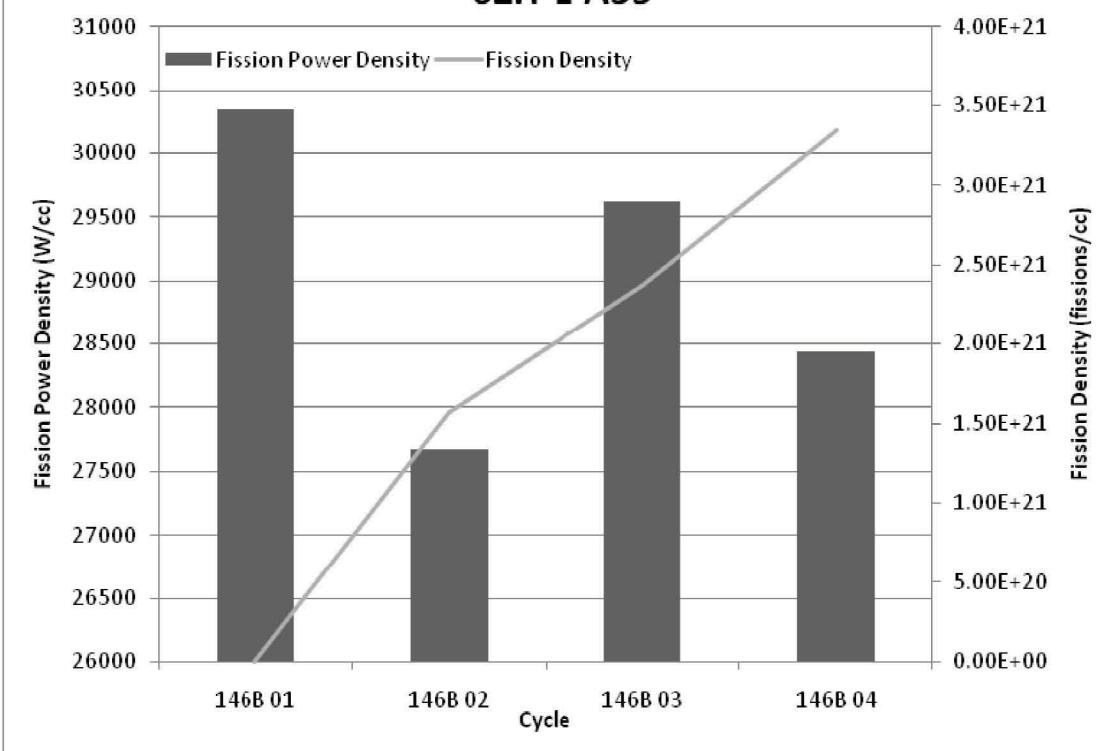
6ZH-1 A33



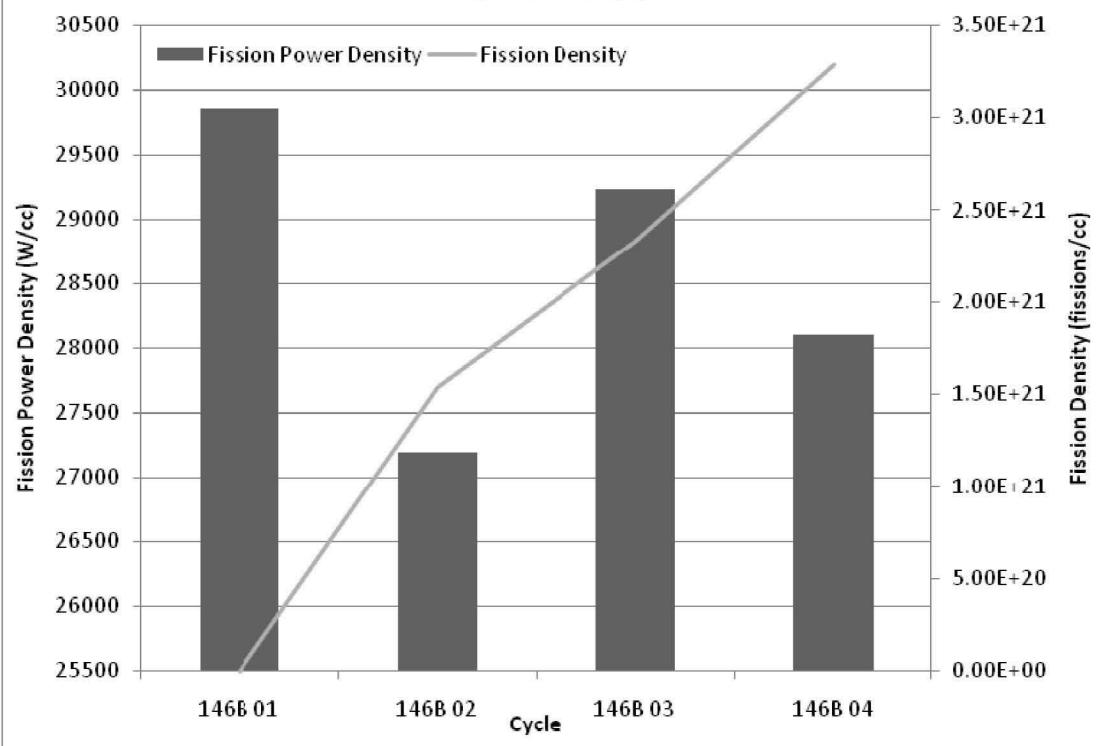
6ZH-1 A34



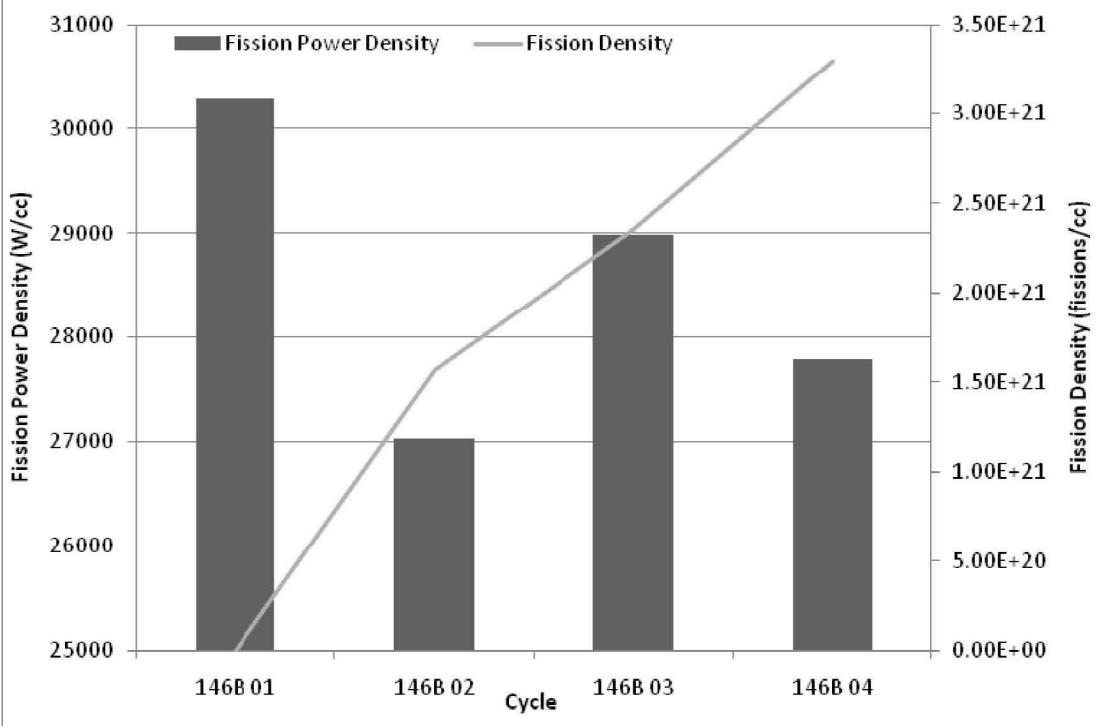
6ZH-1 A35

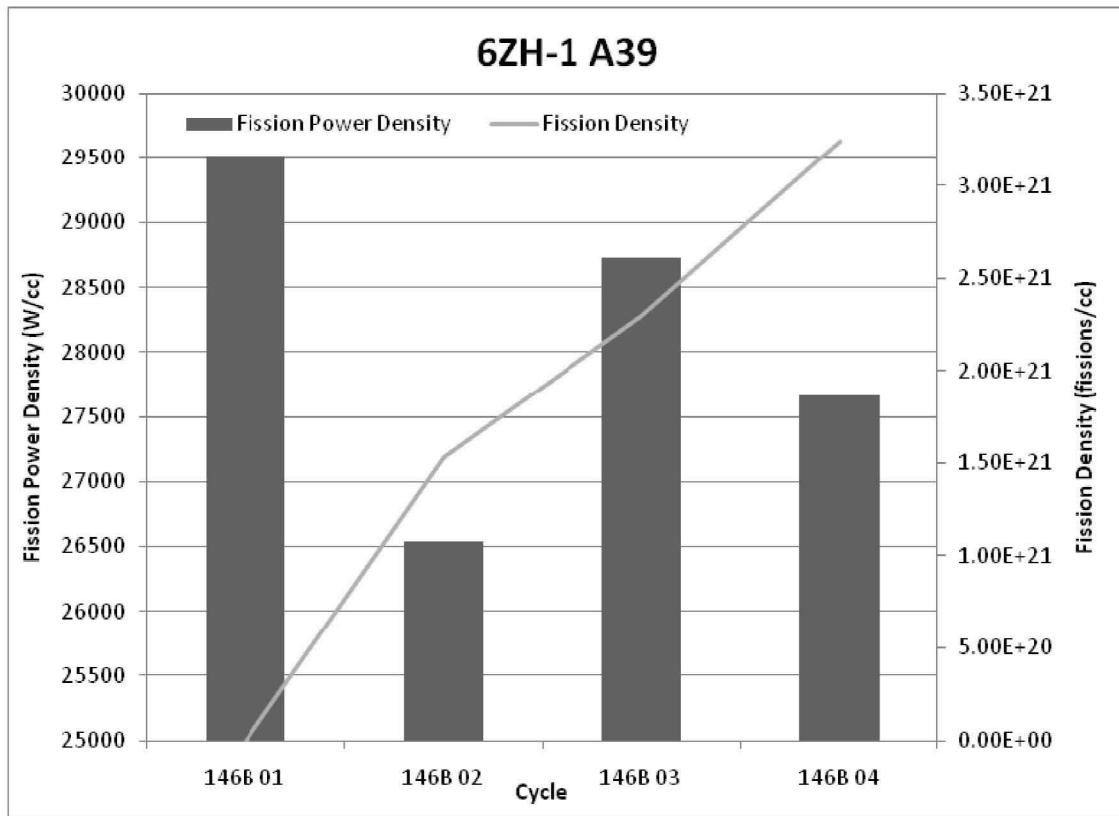
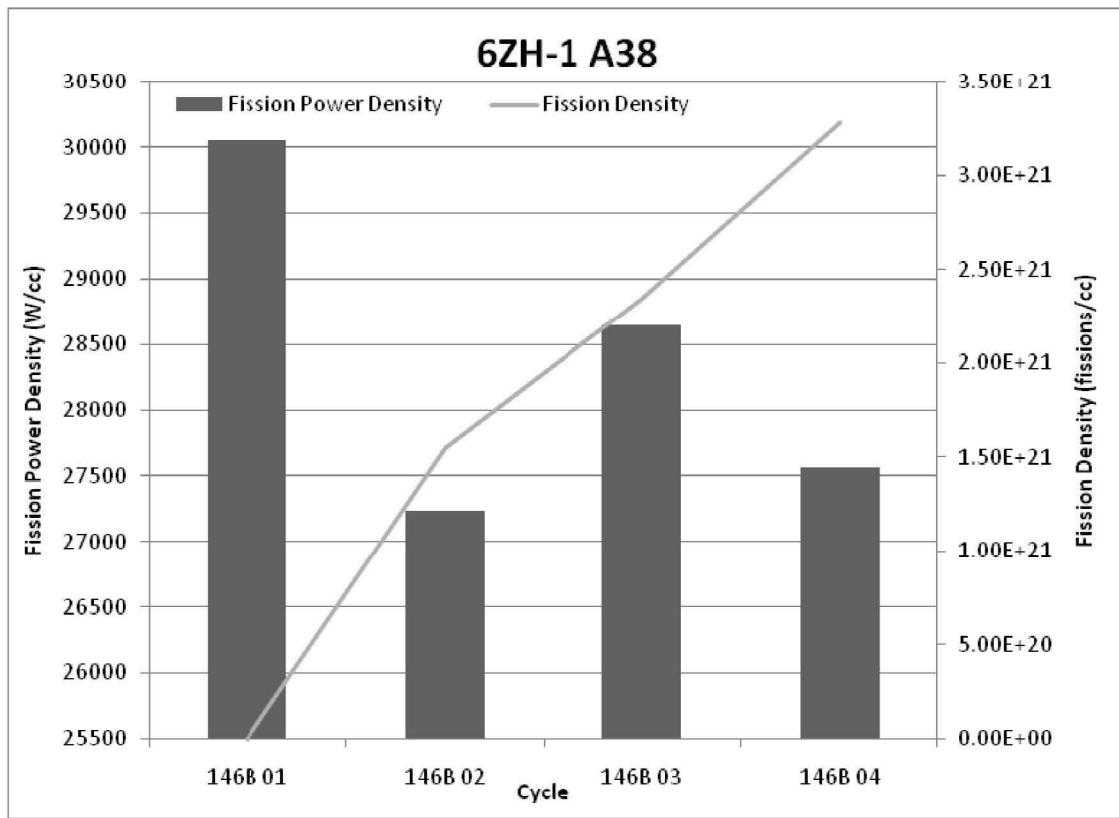


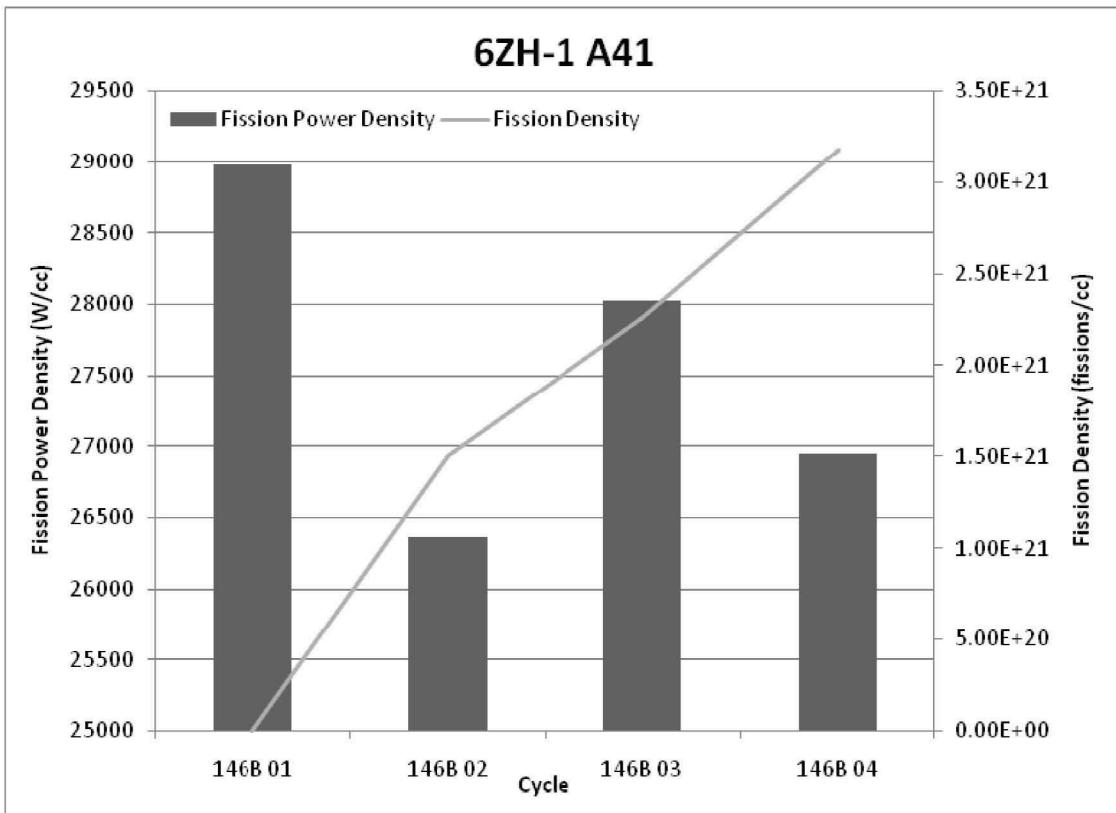
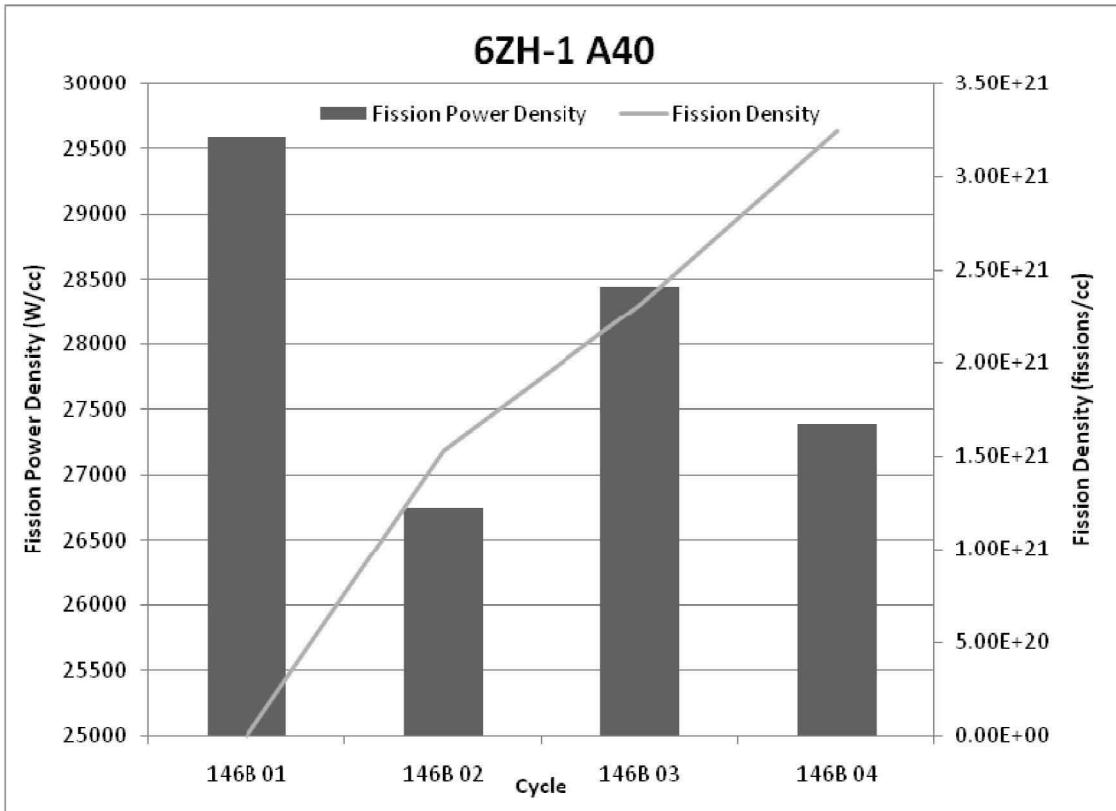
6ZH-1 A36



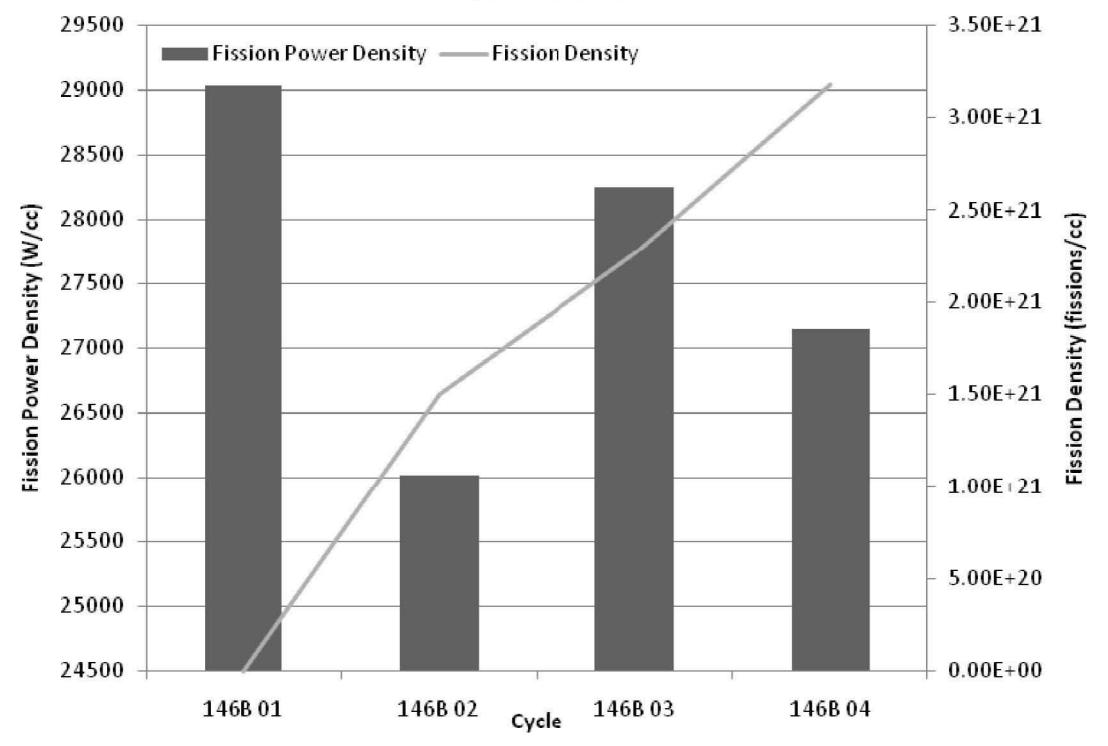
6ZH-1 A37



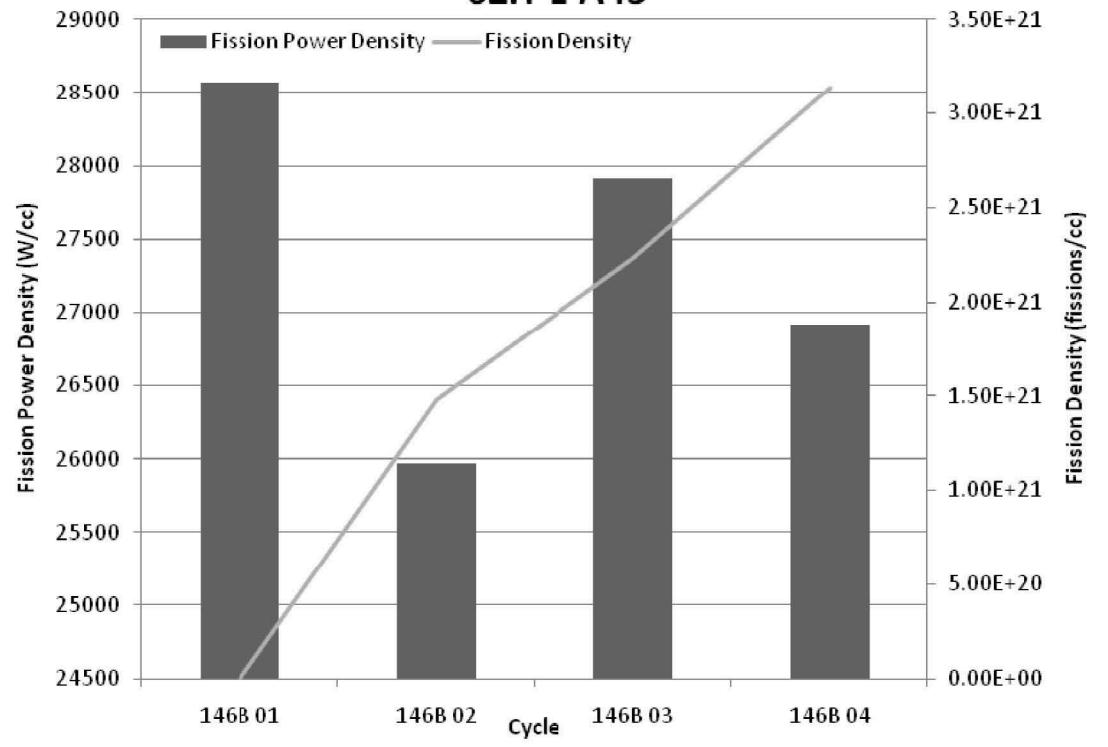


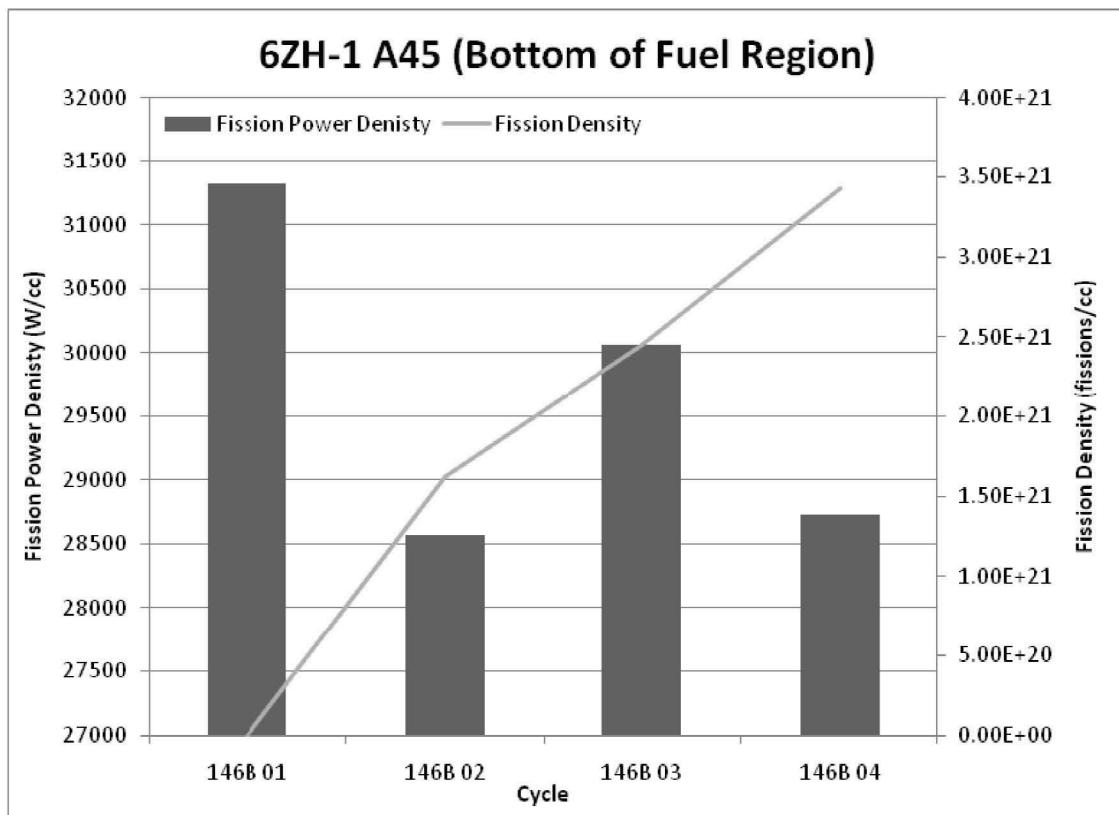
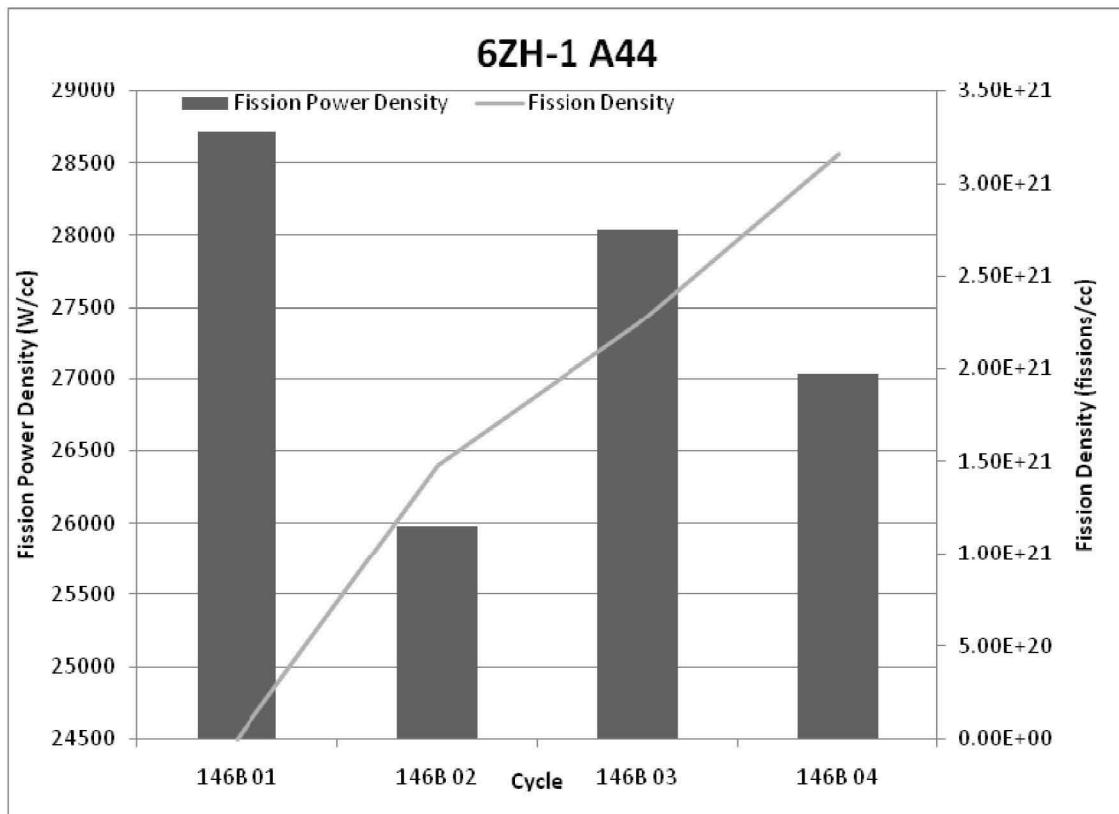


6ZH-1 A42

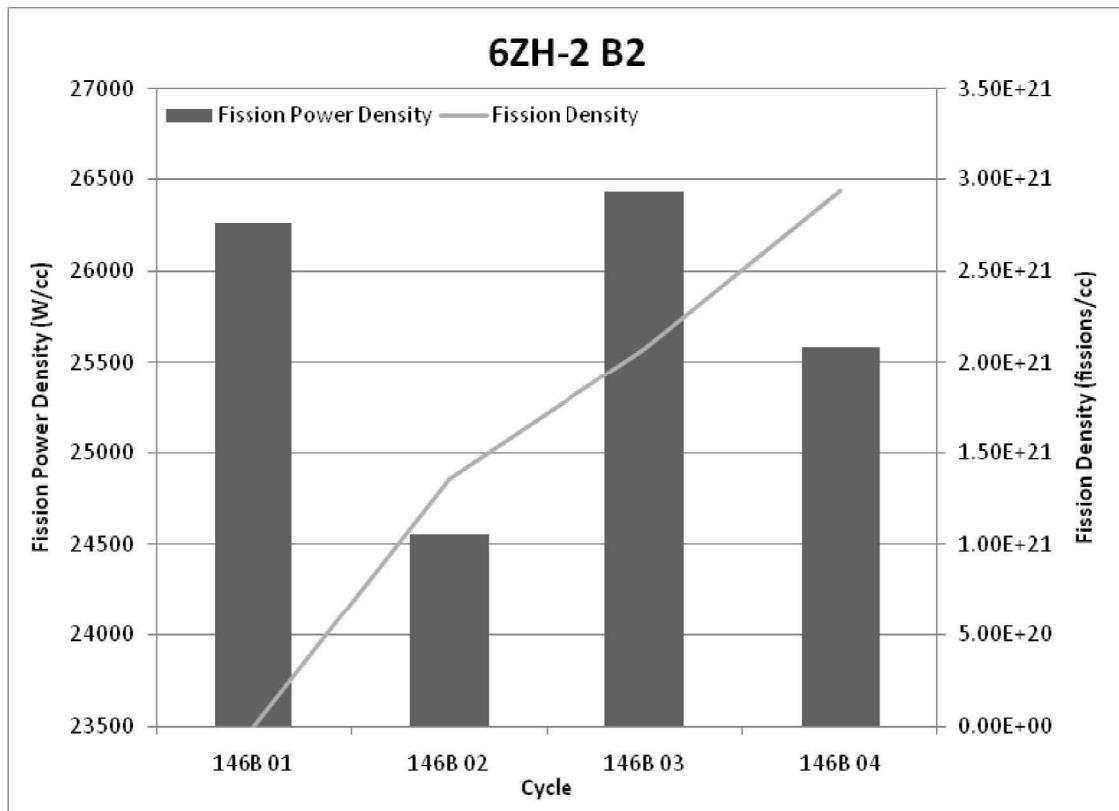
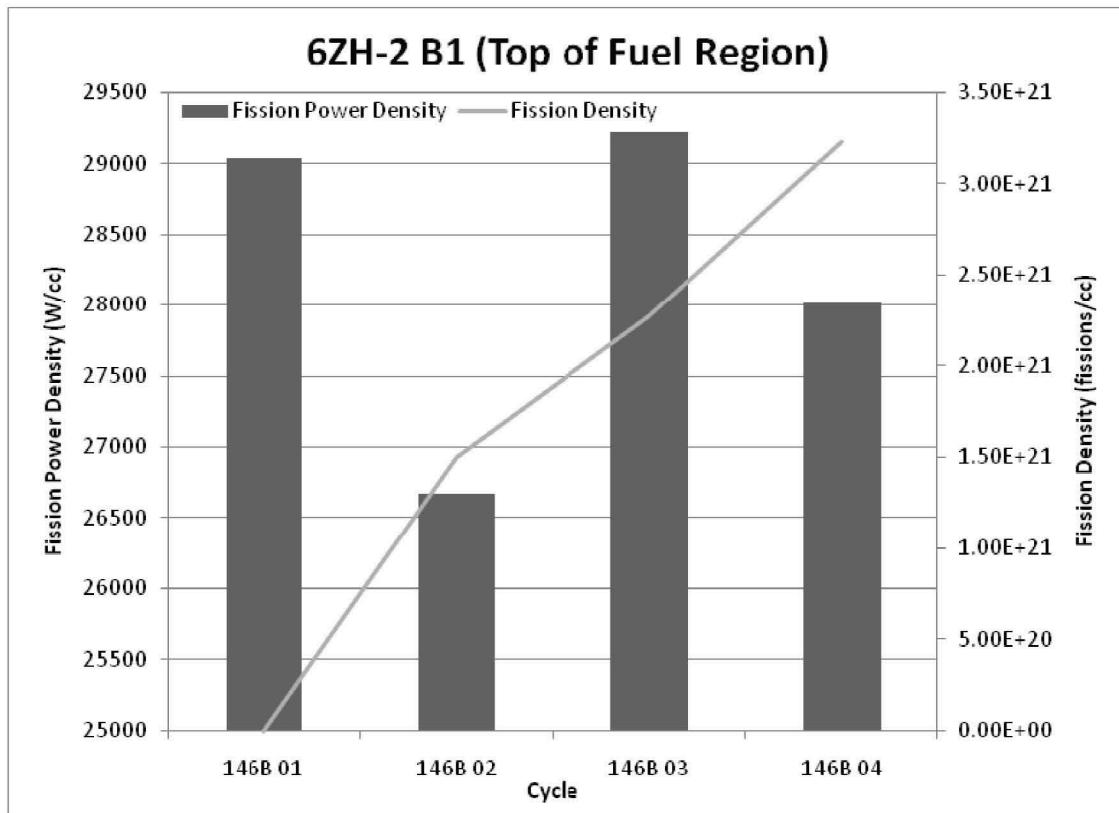


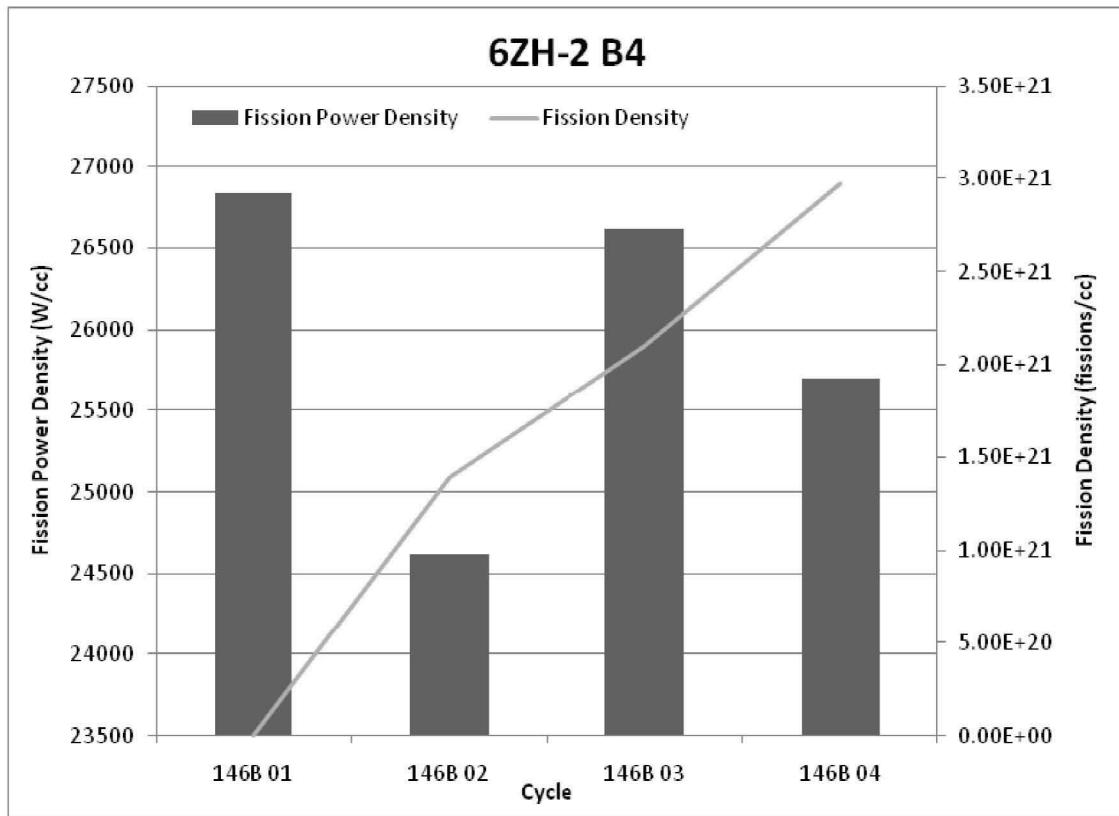
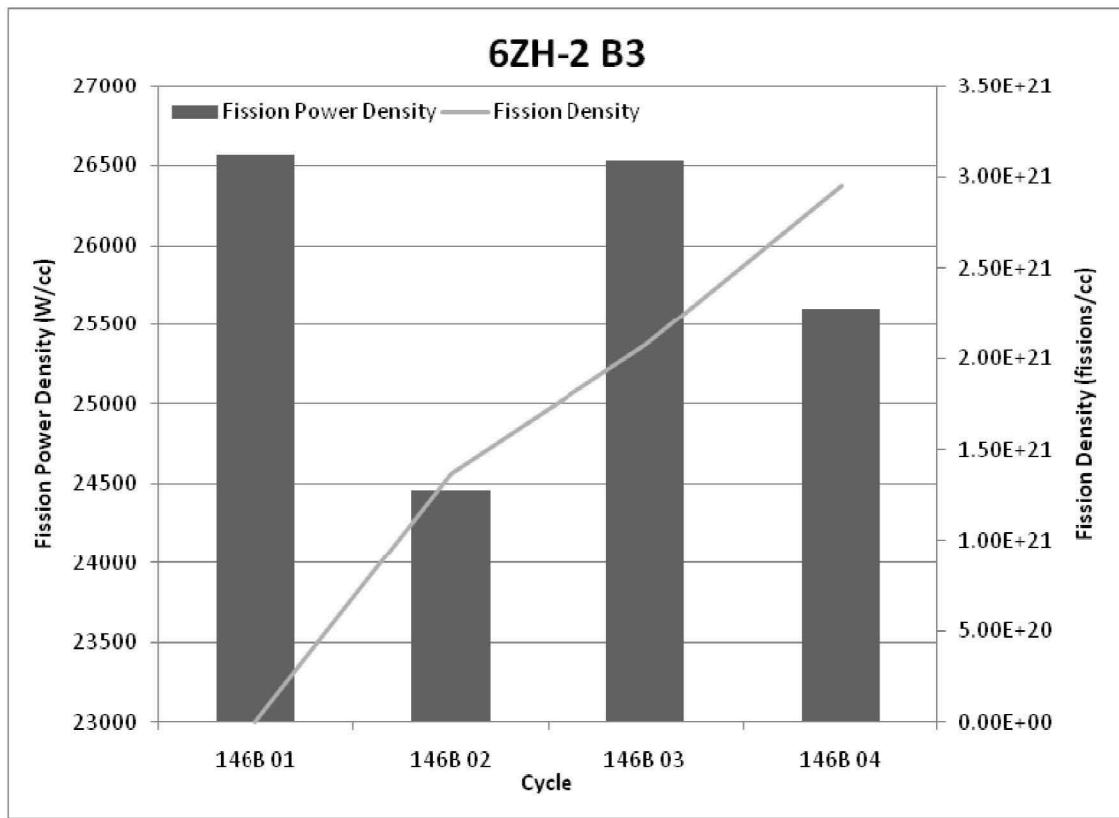
6ZH-1 A43

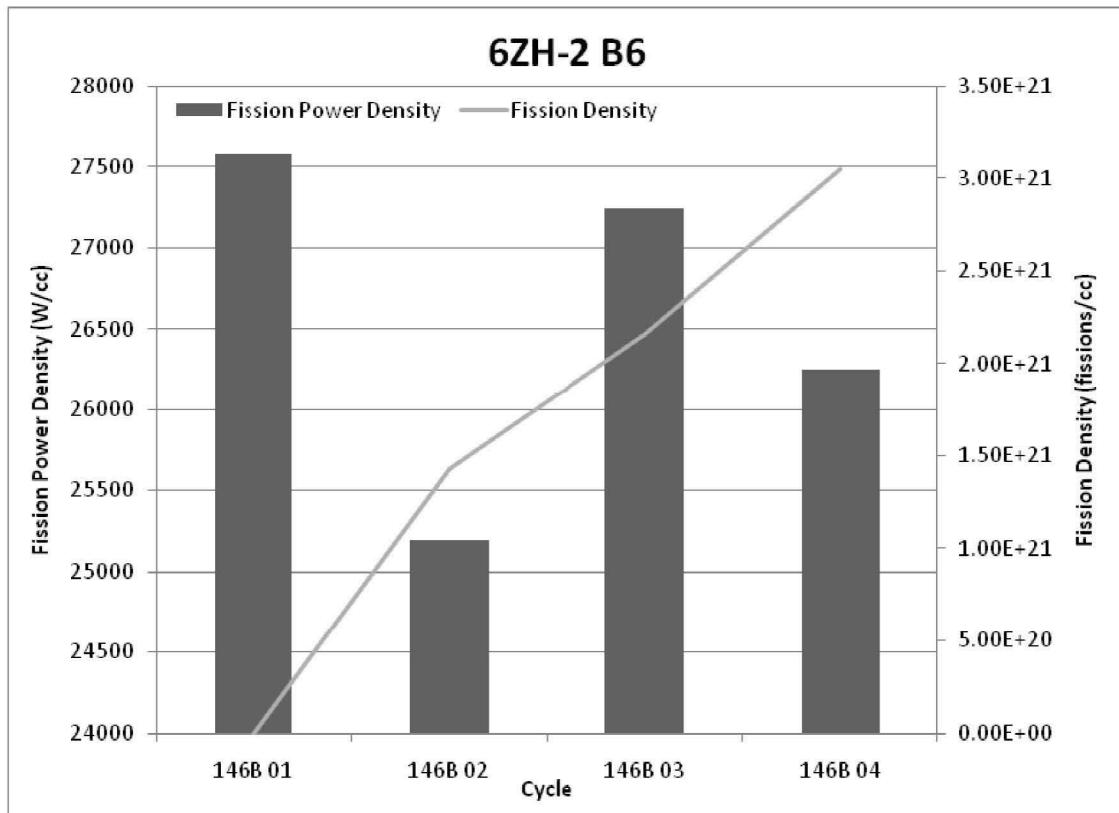
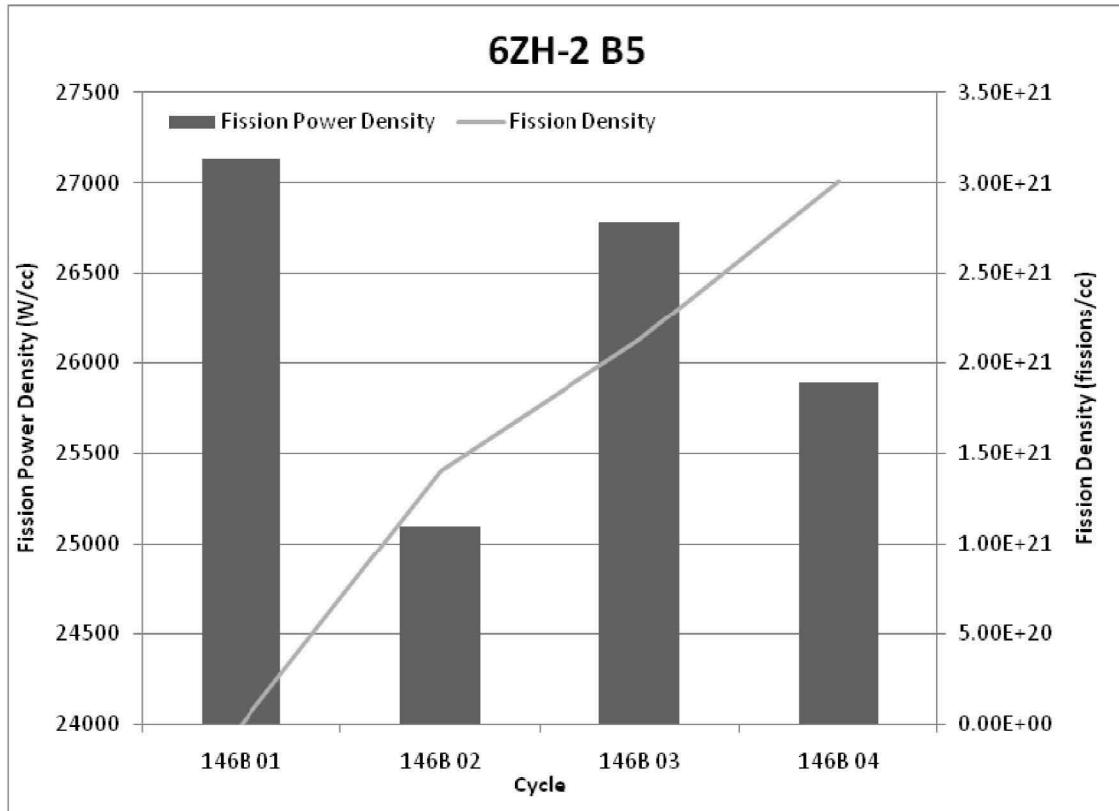


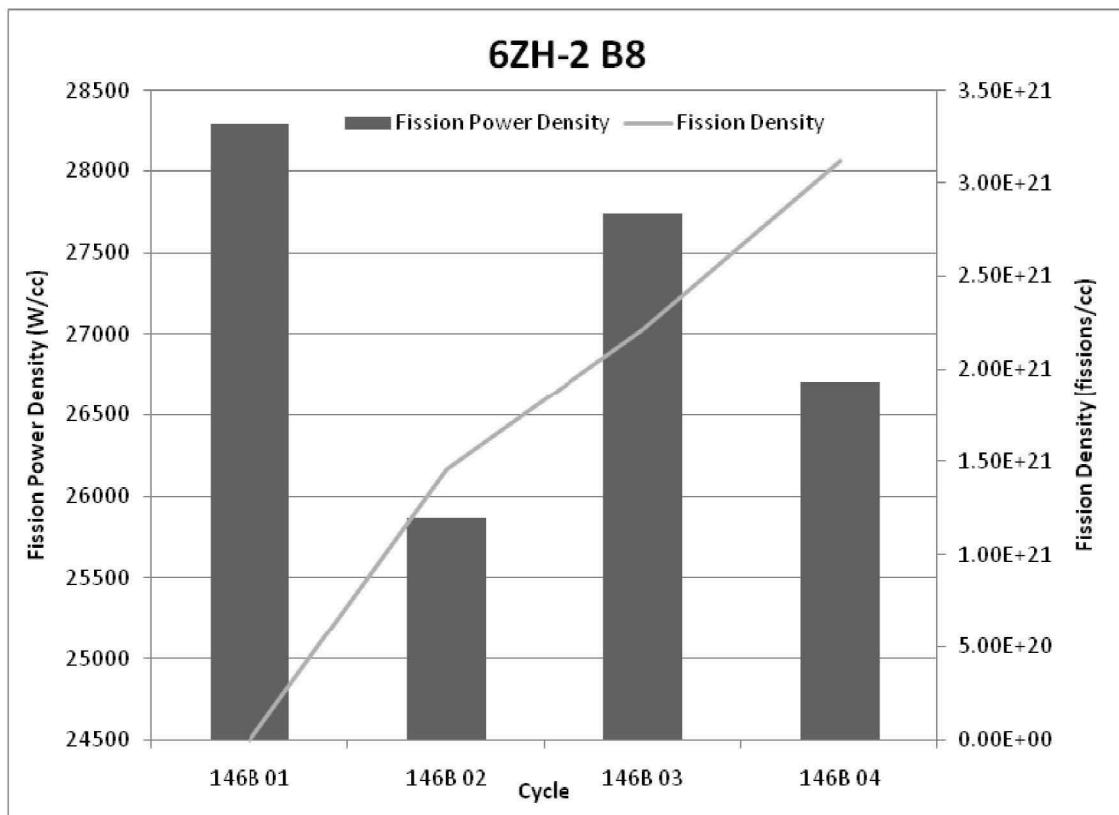
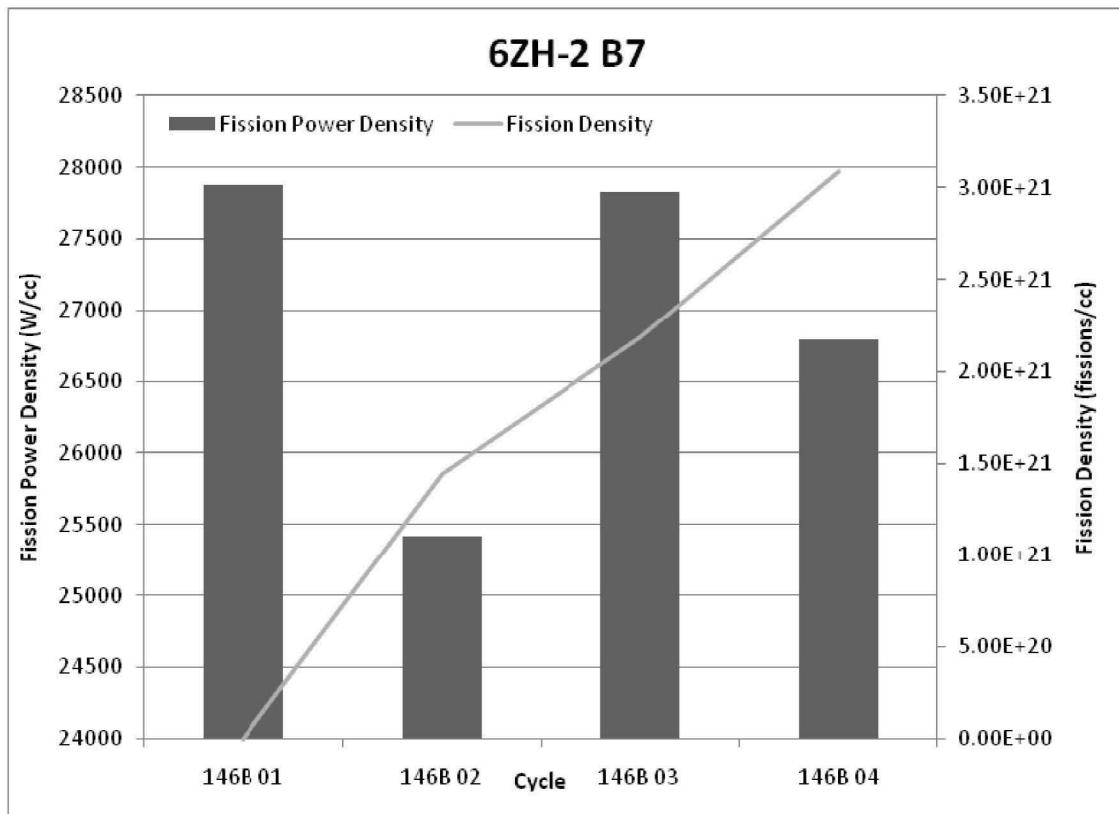


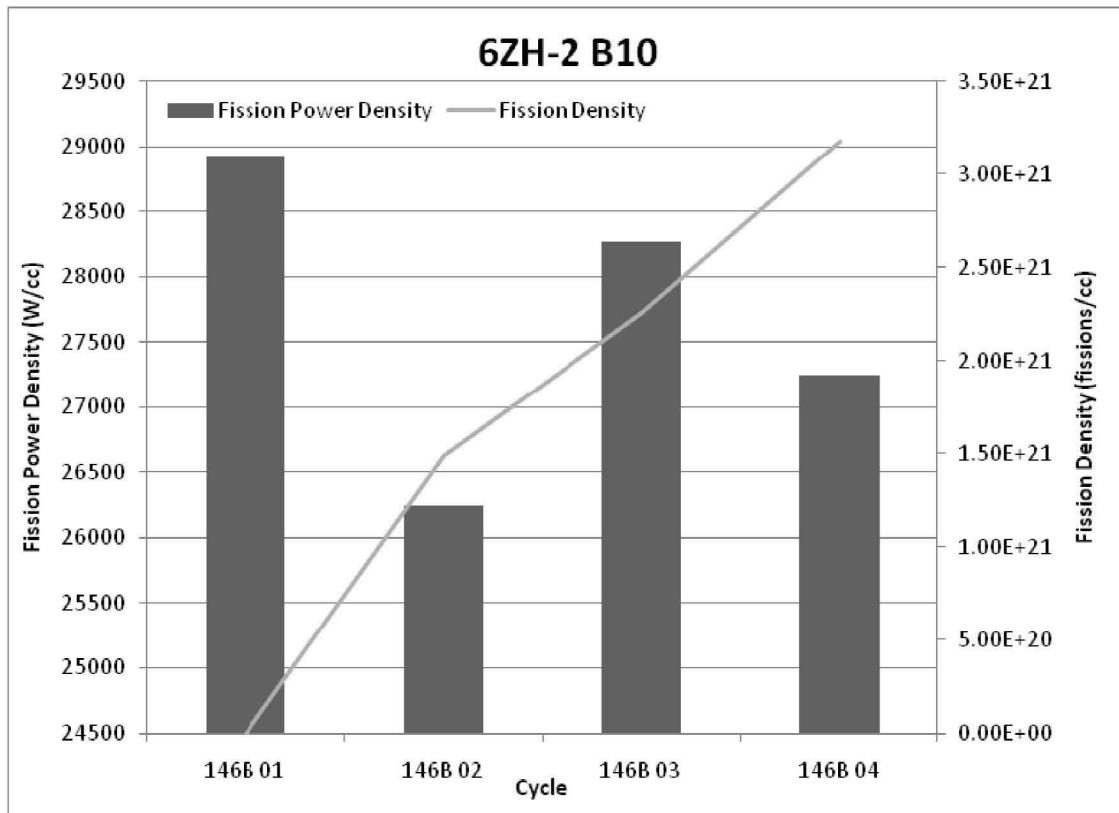
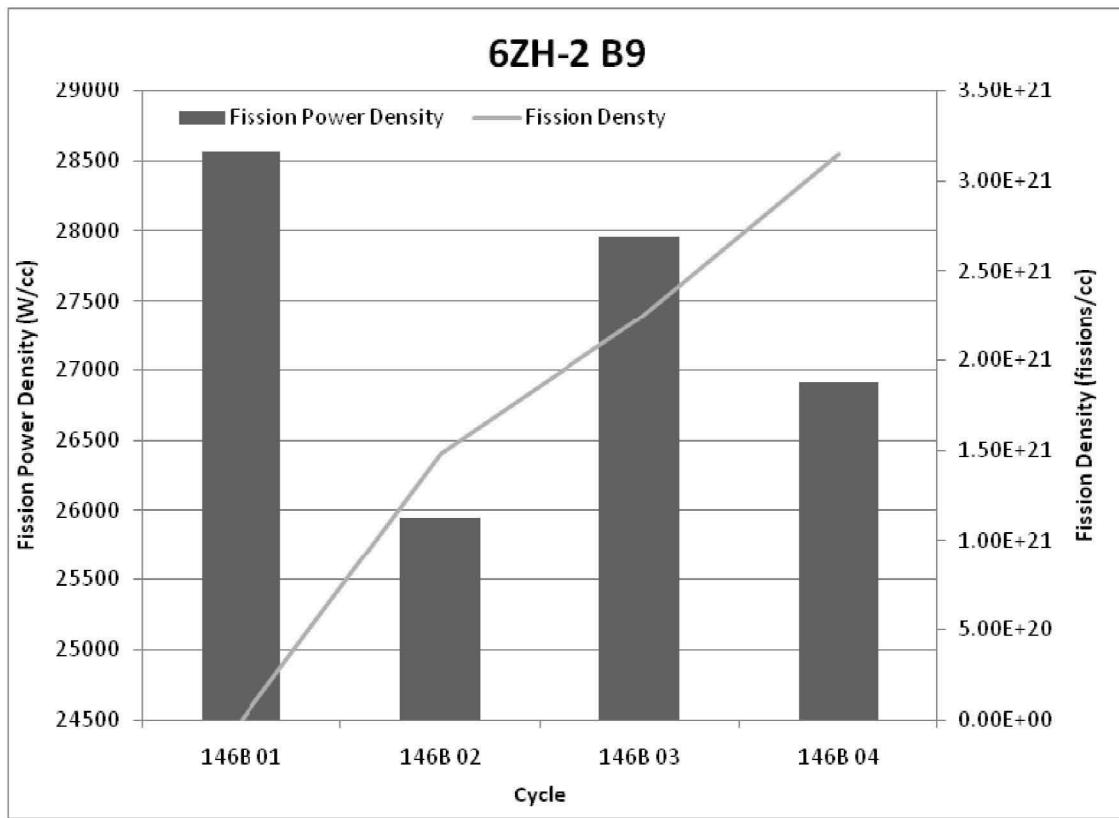
A-2. Plate 6ZH-2

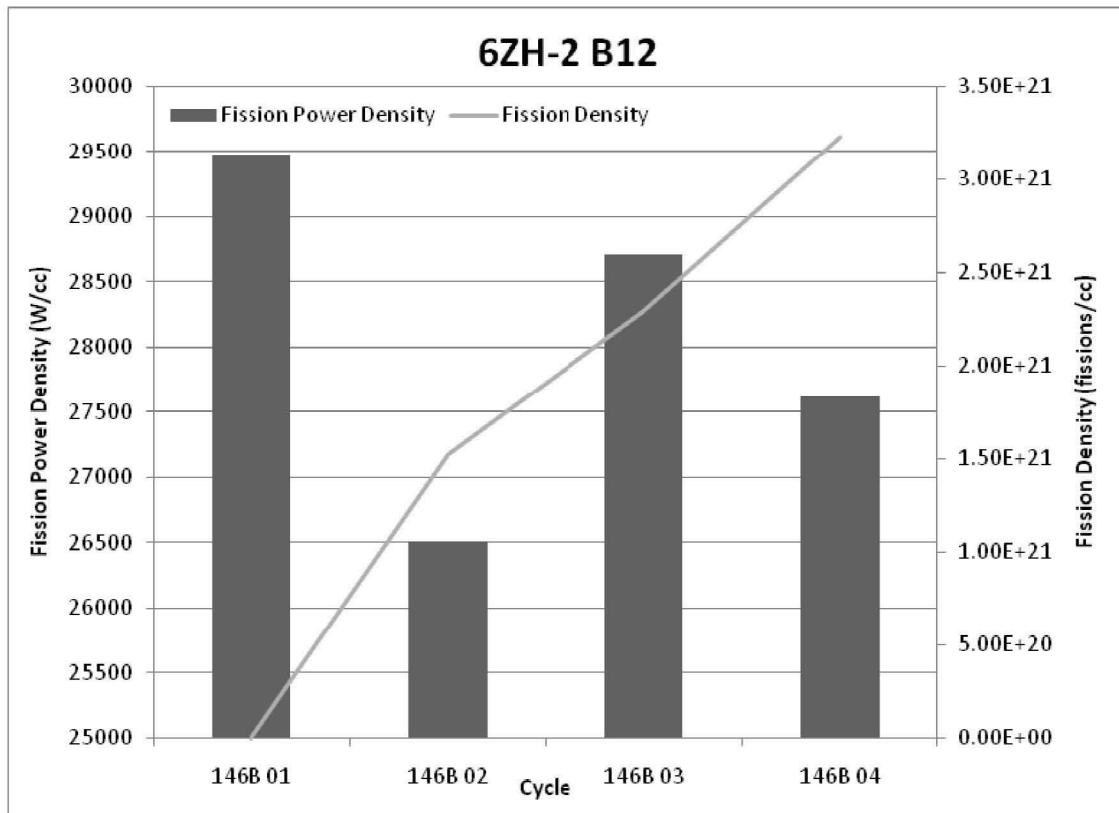
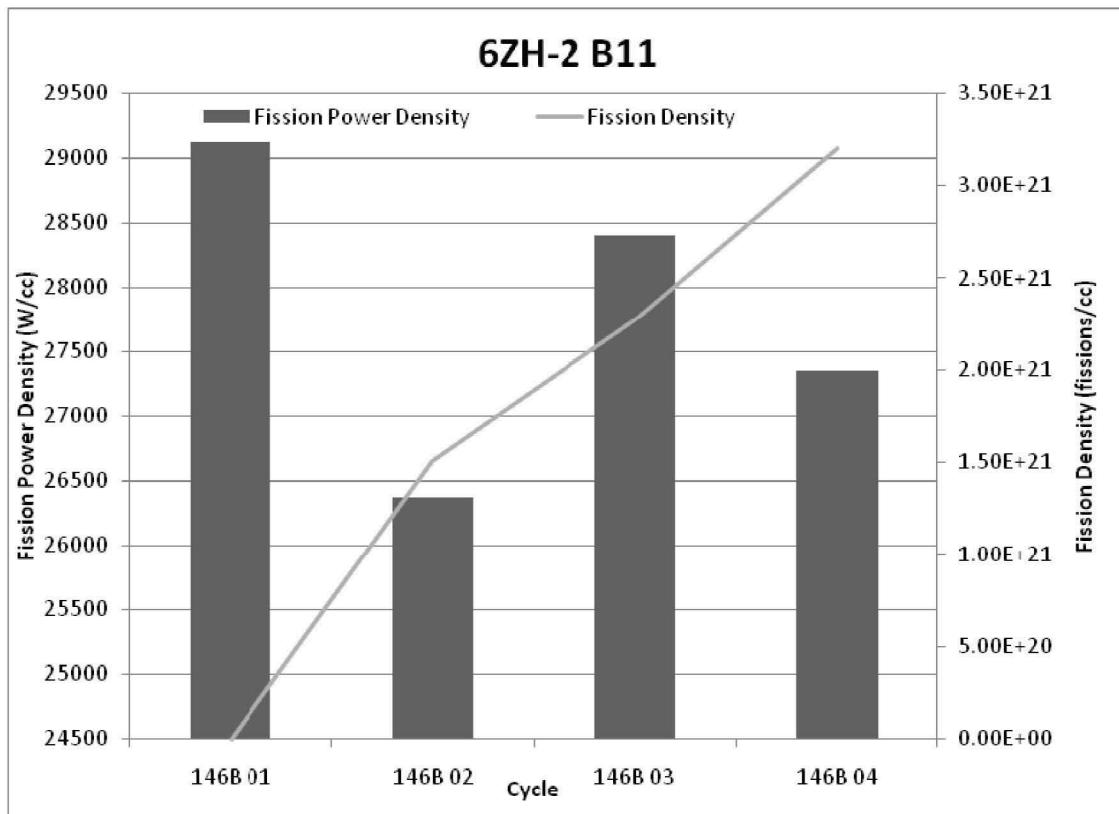


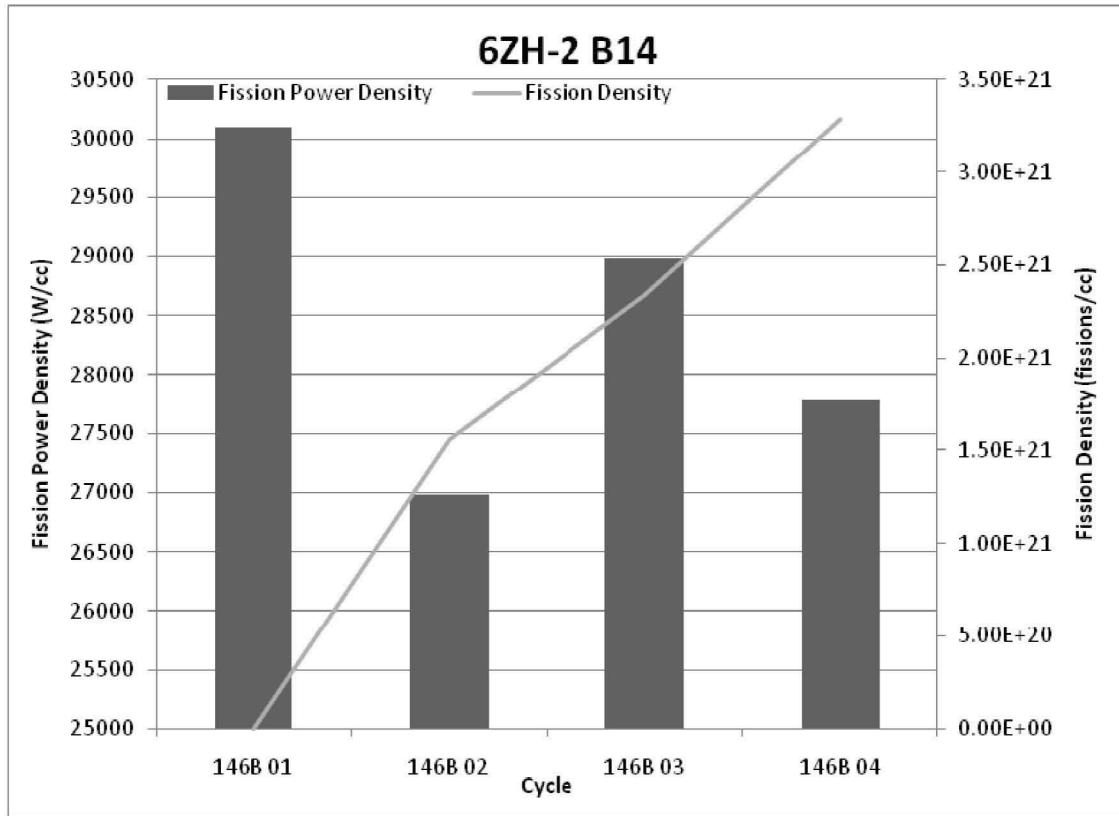
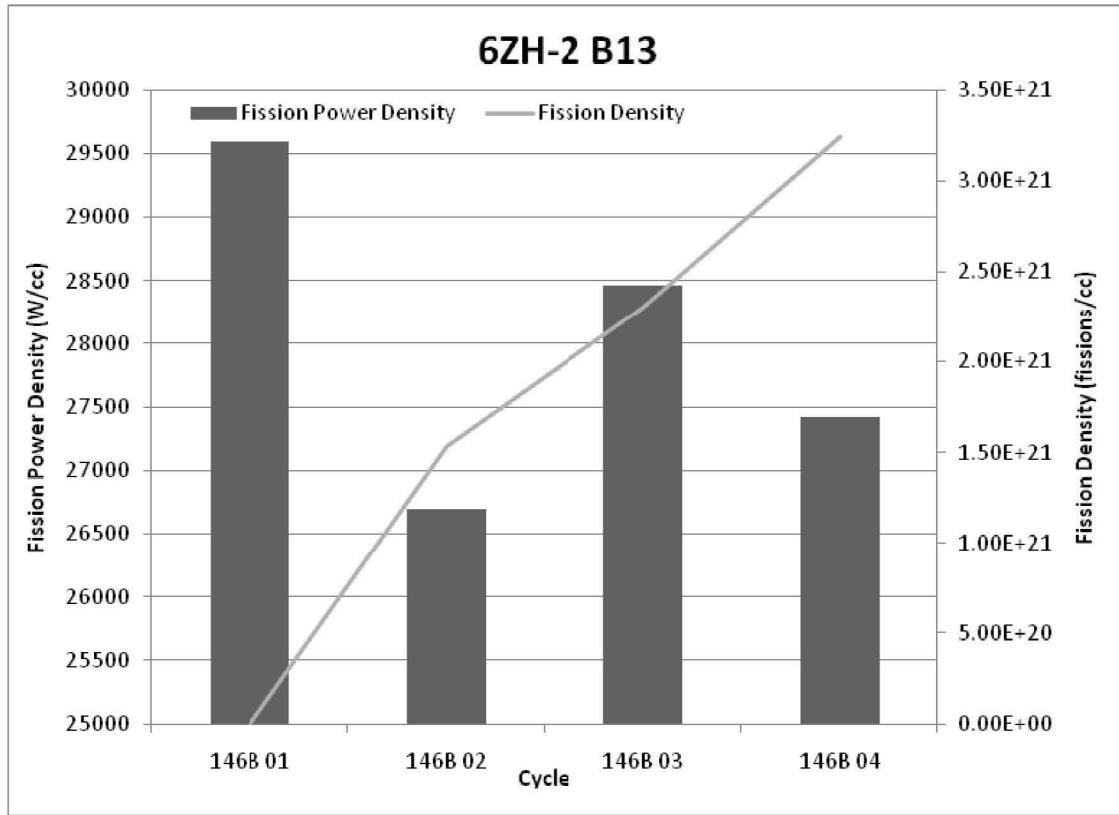


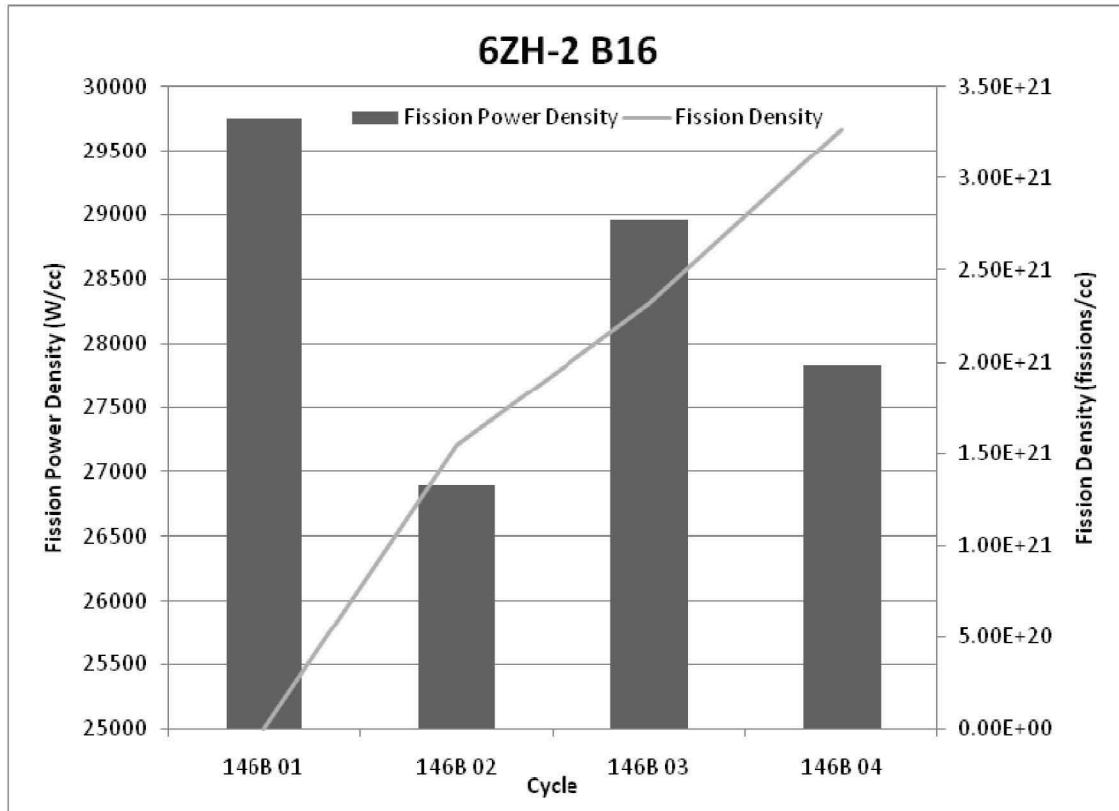
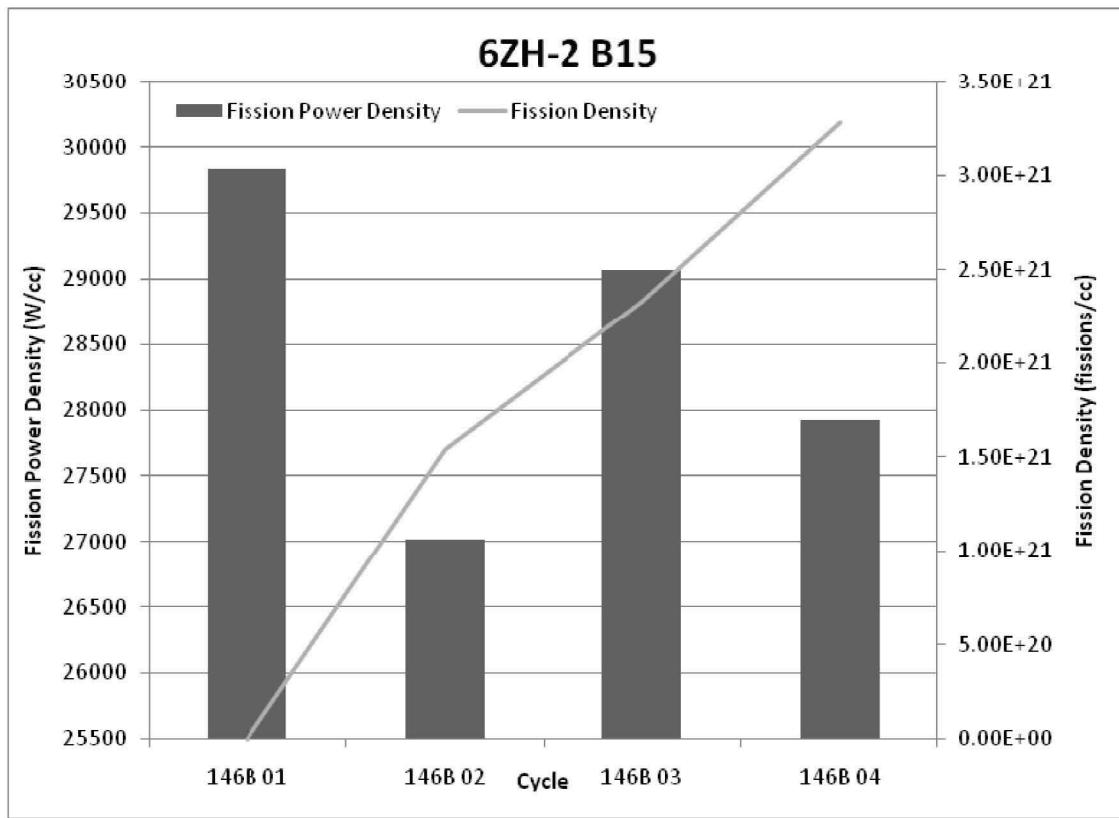


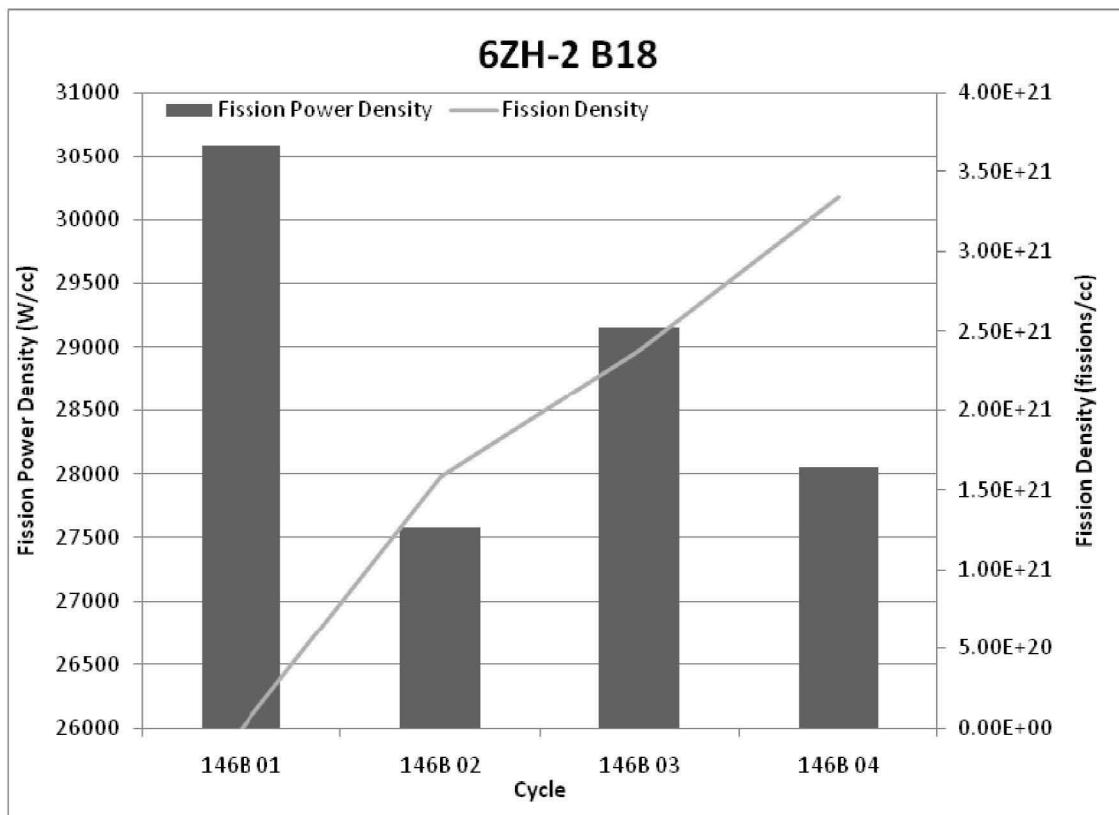
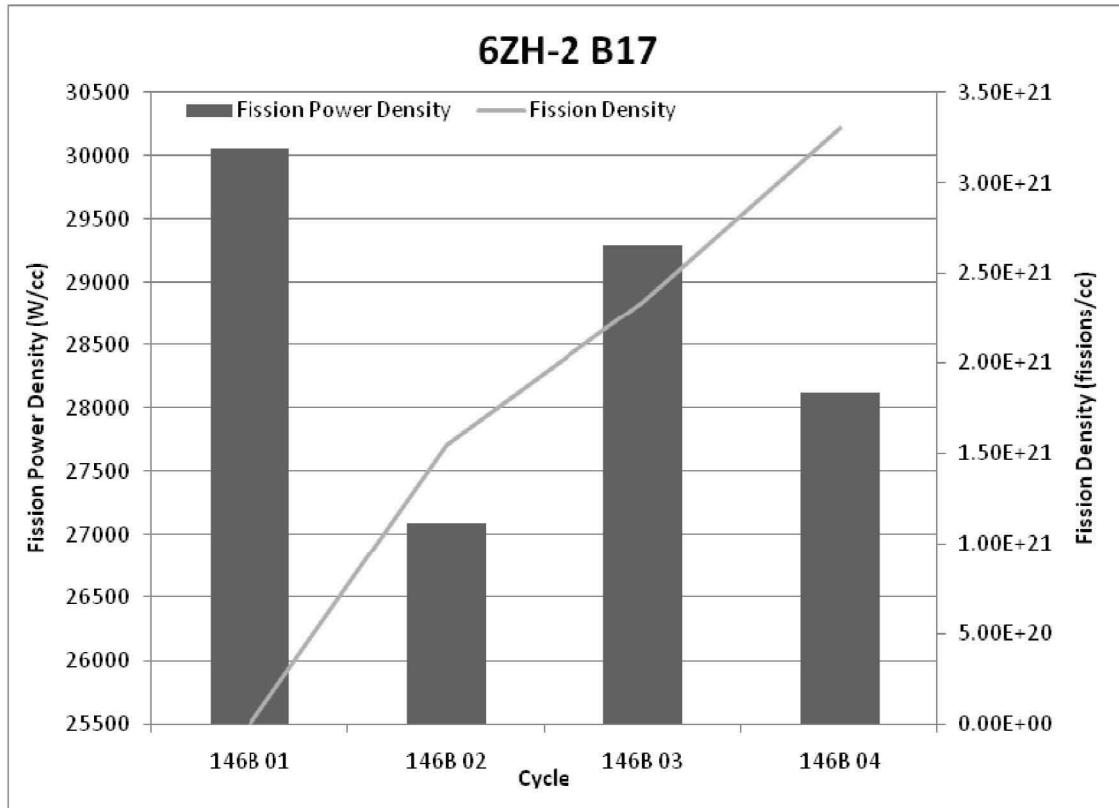


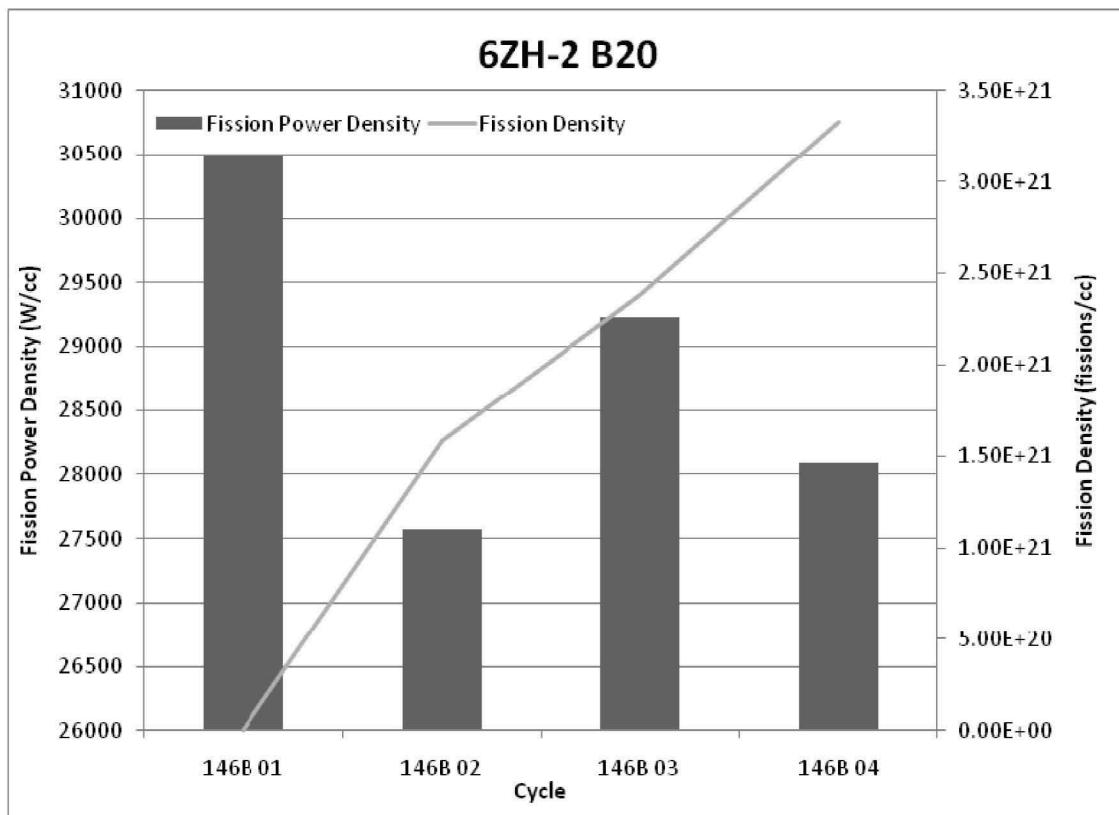
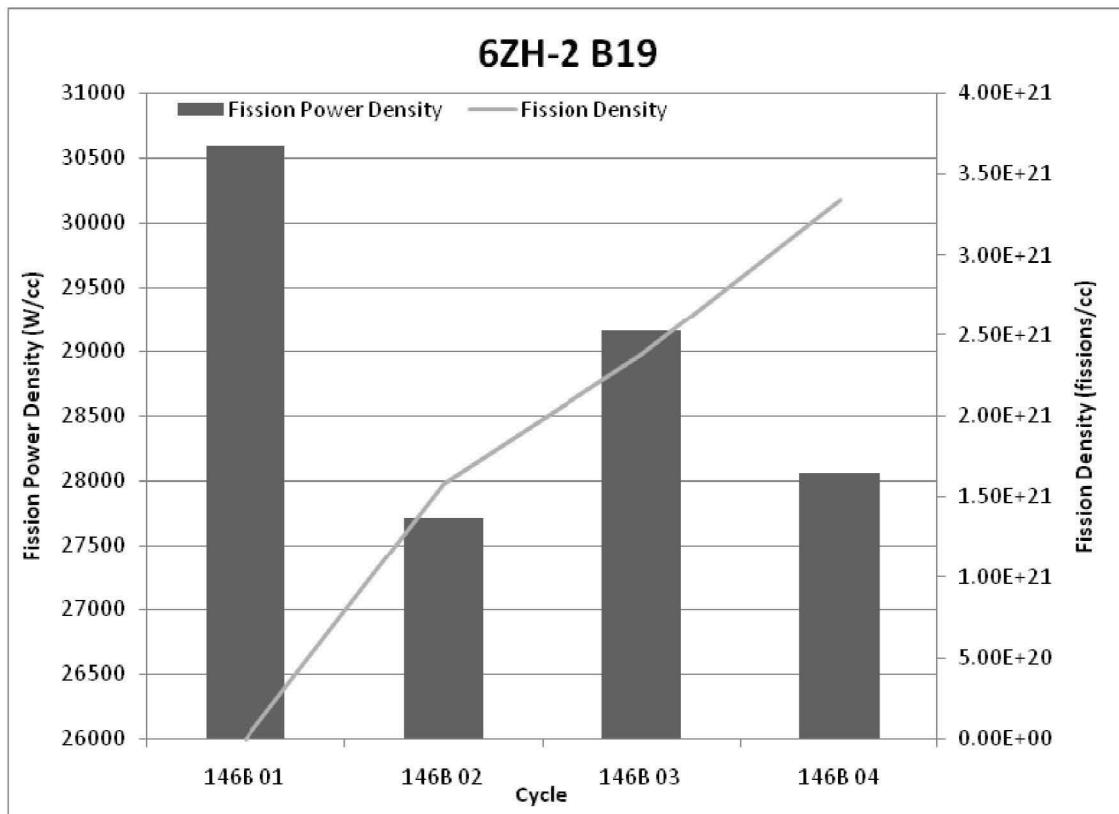


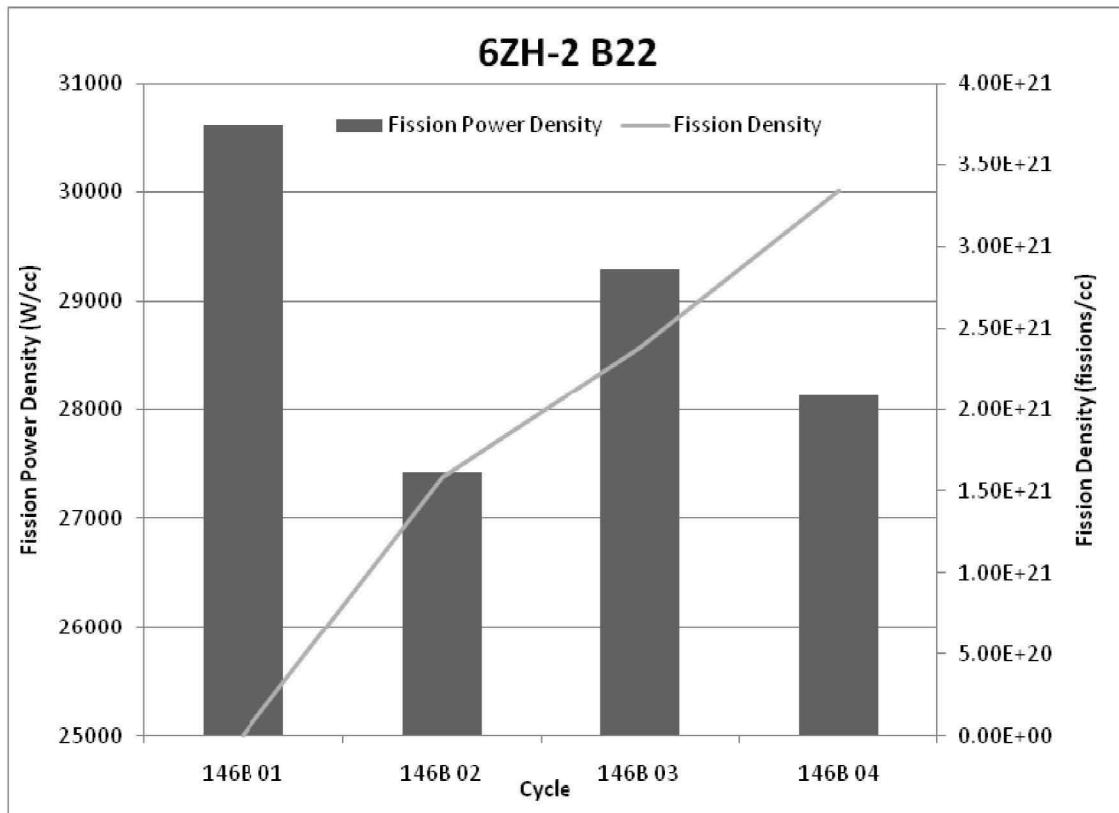
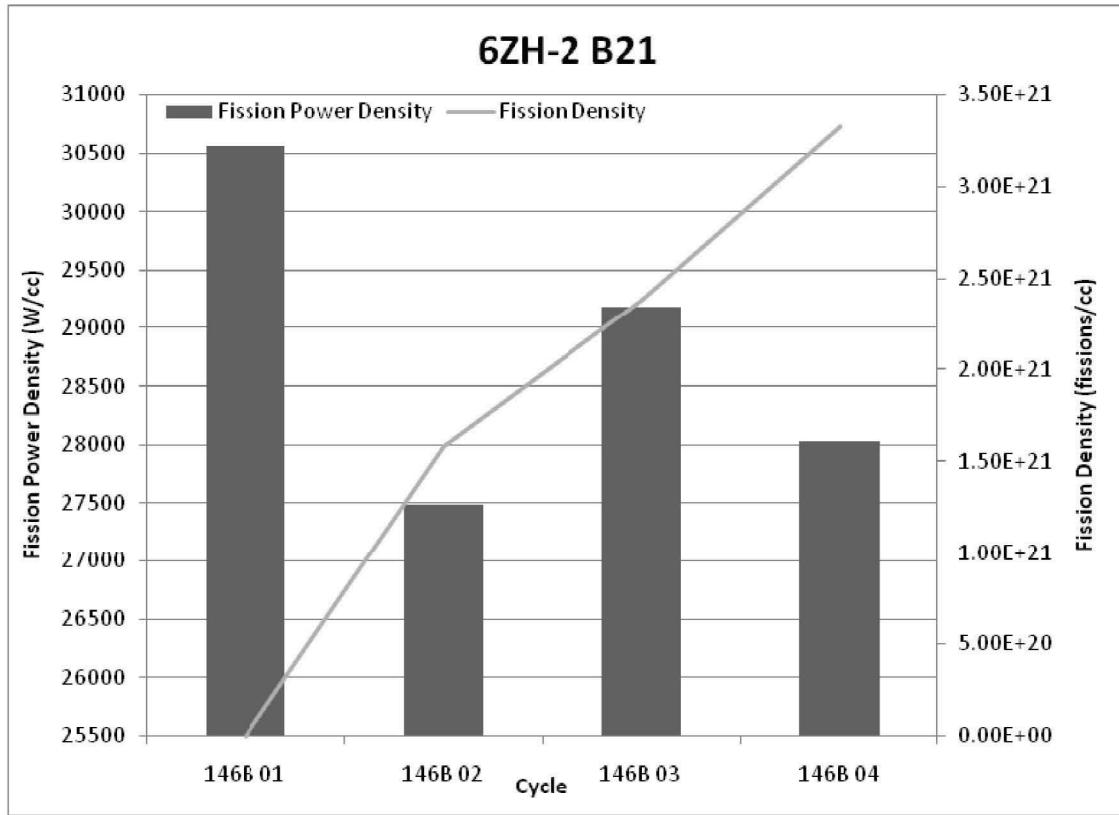


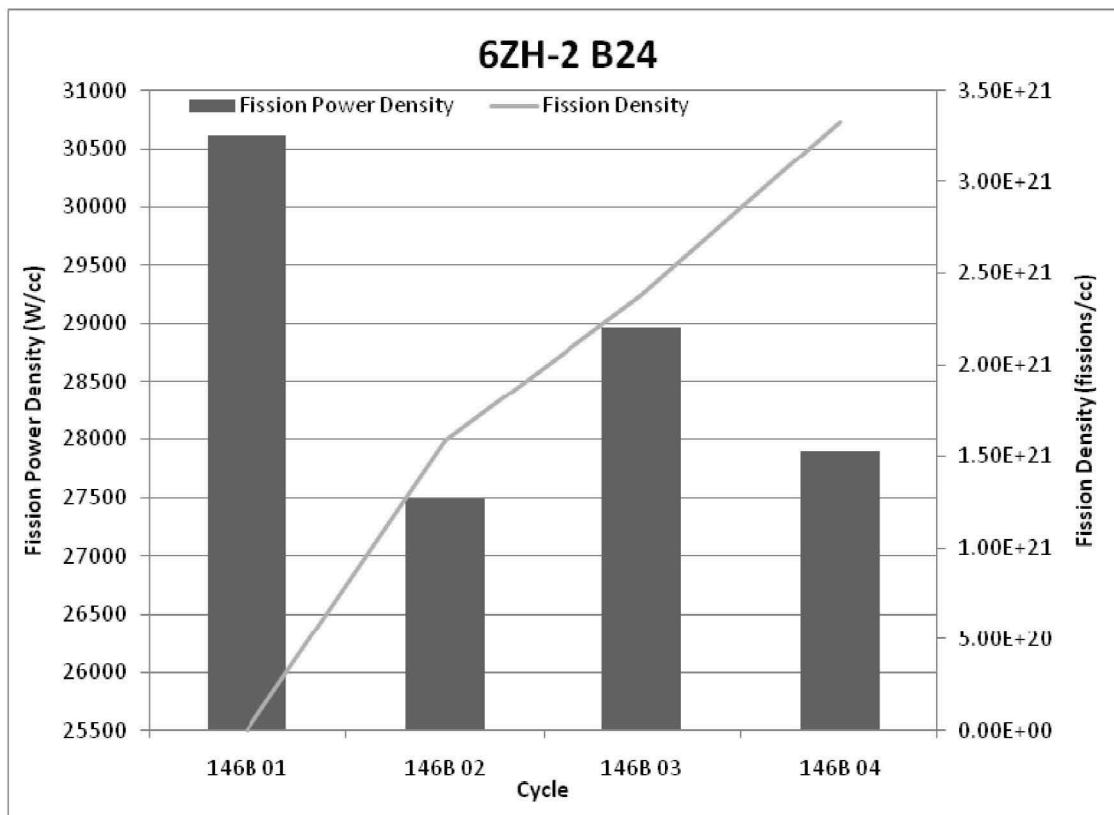
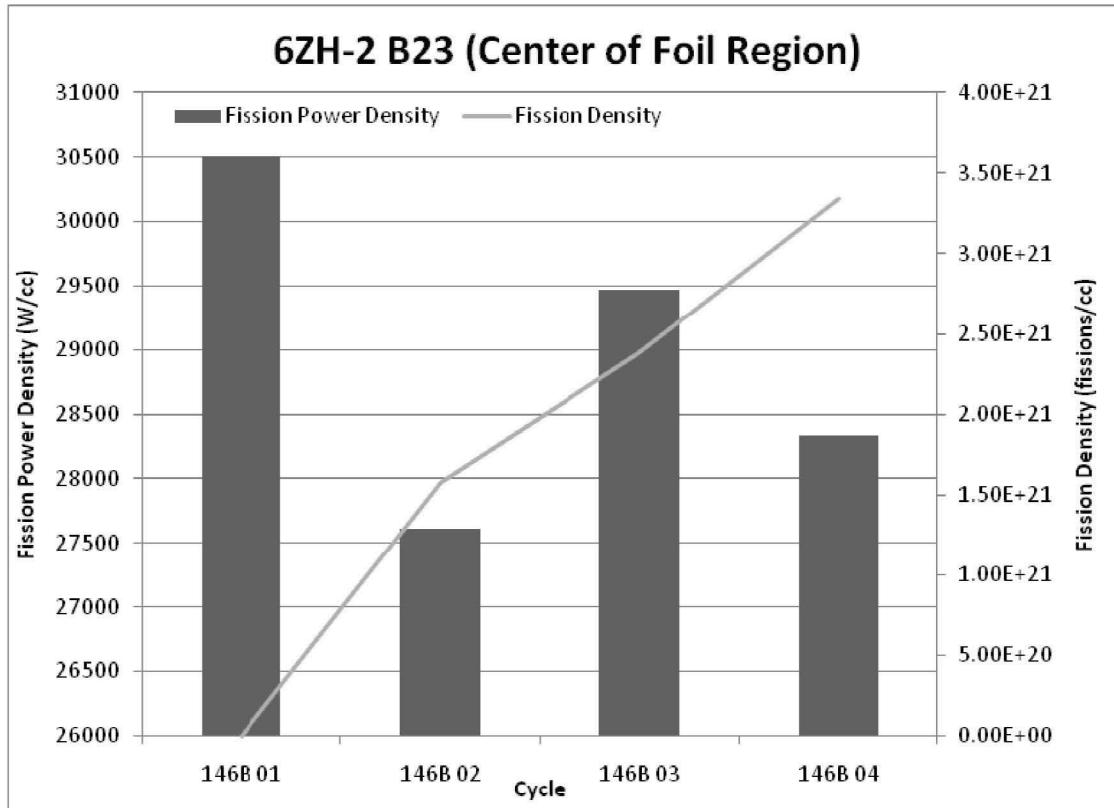


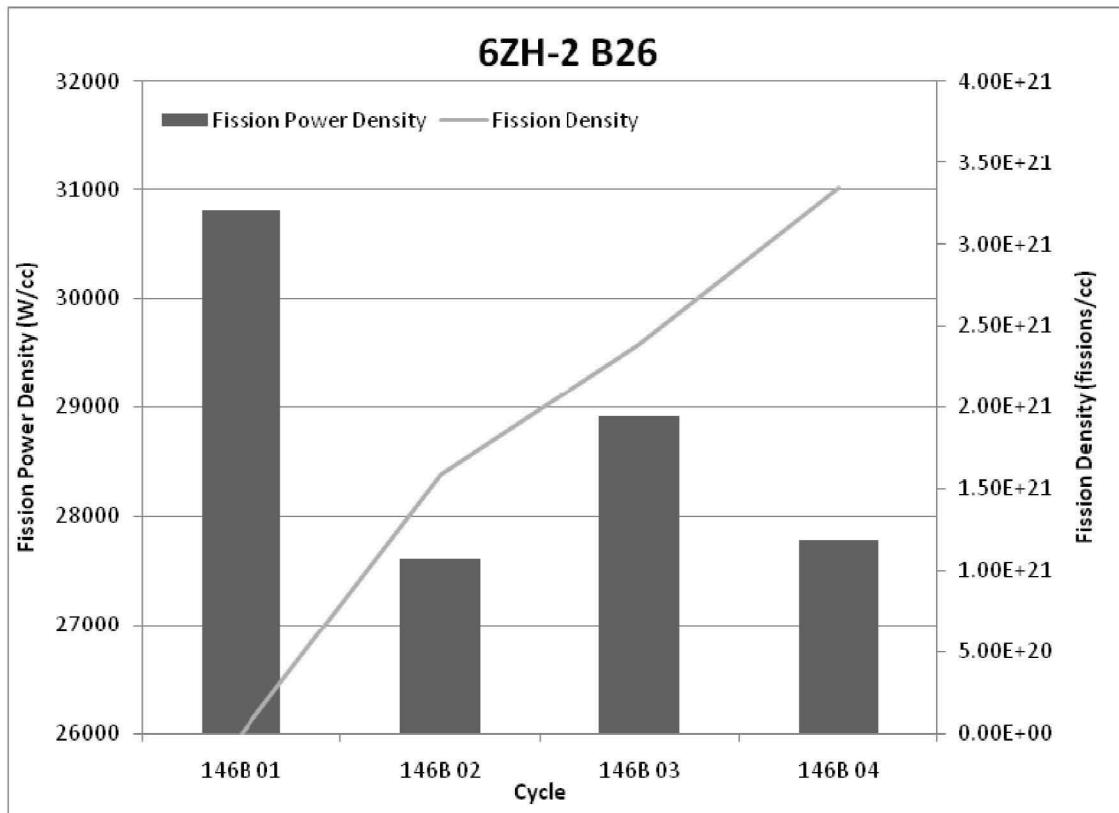
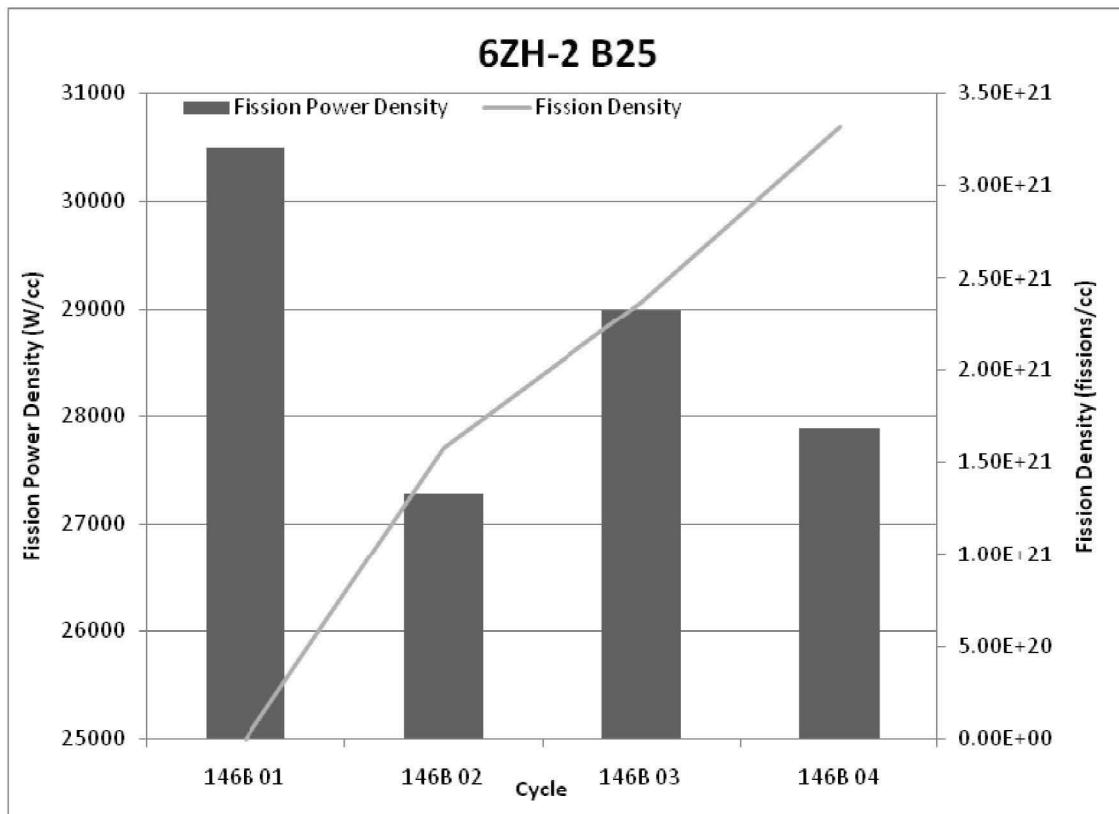


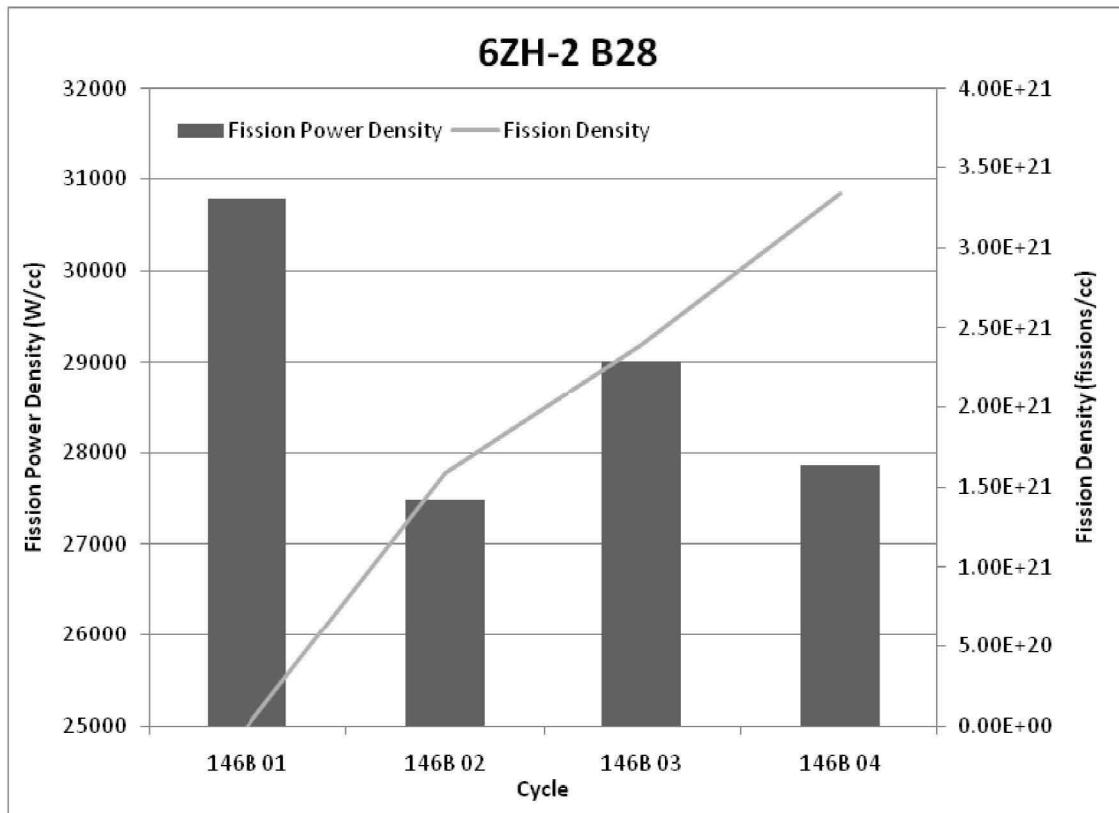
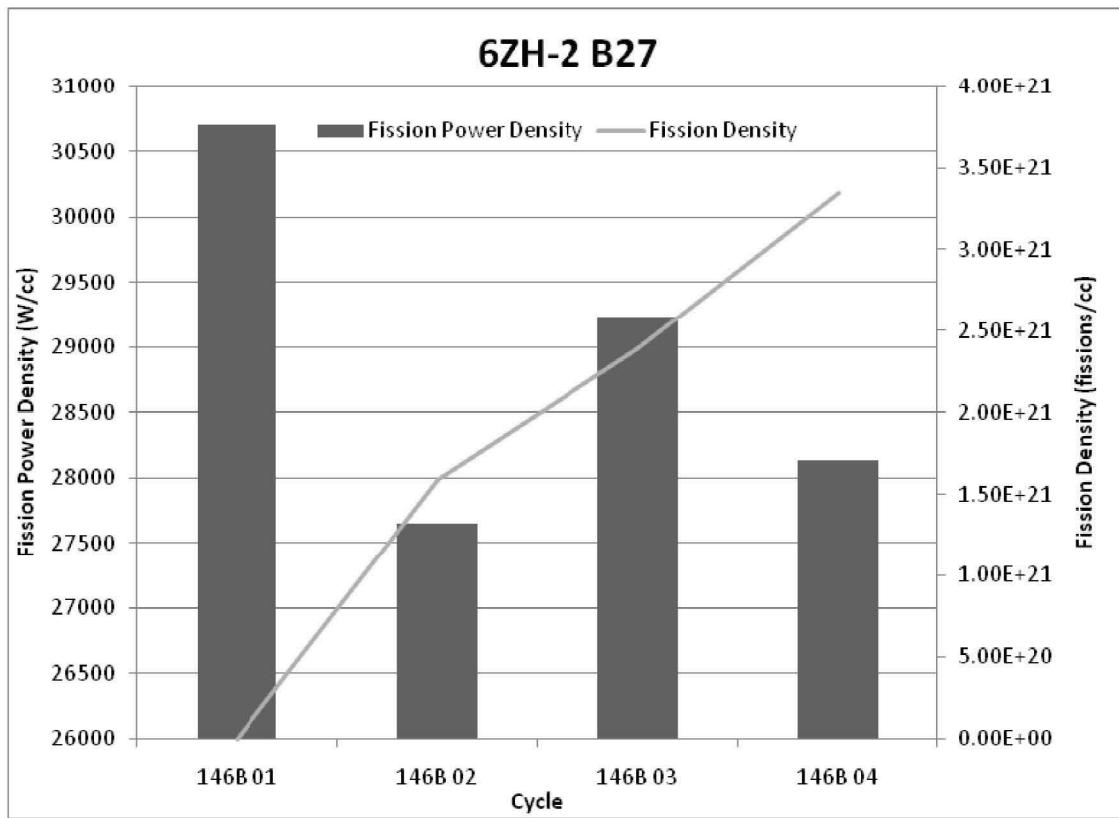


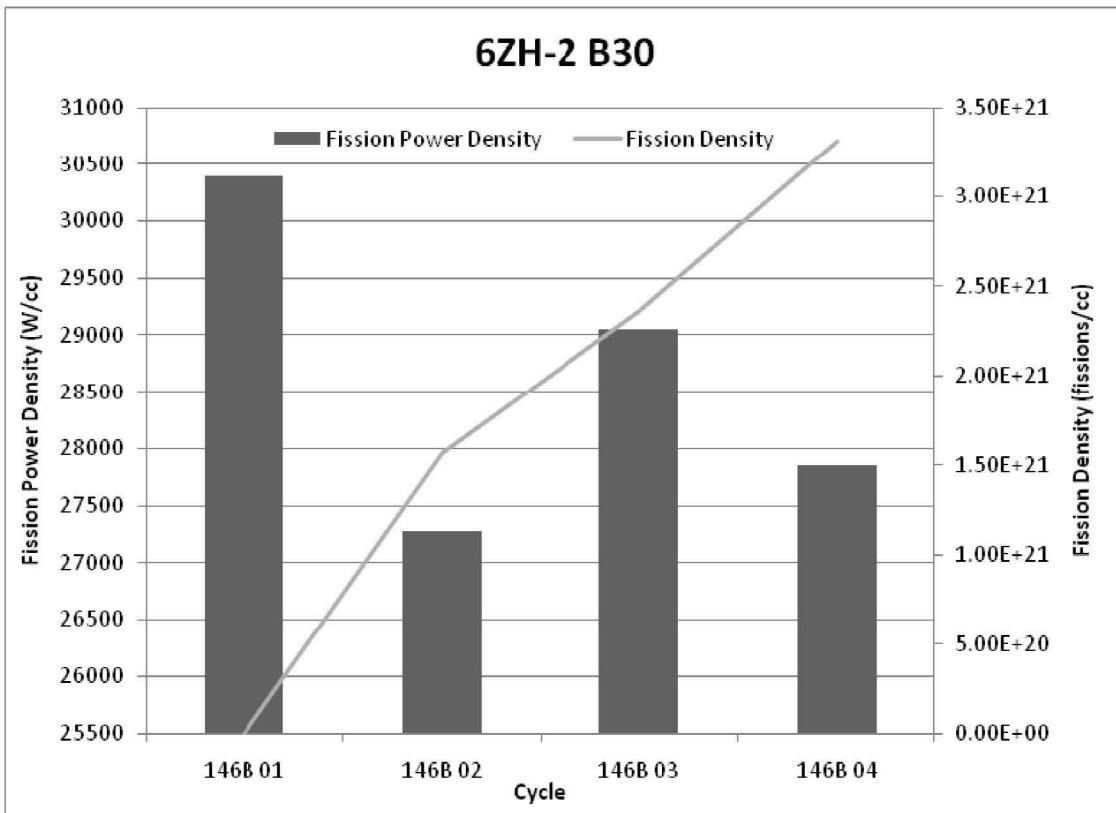
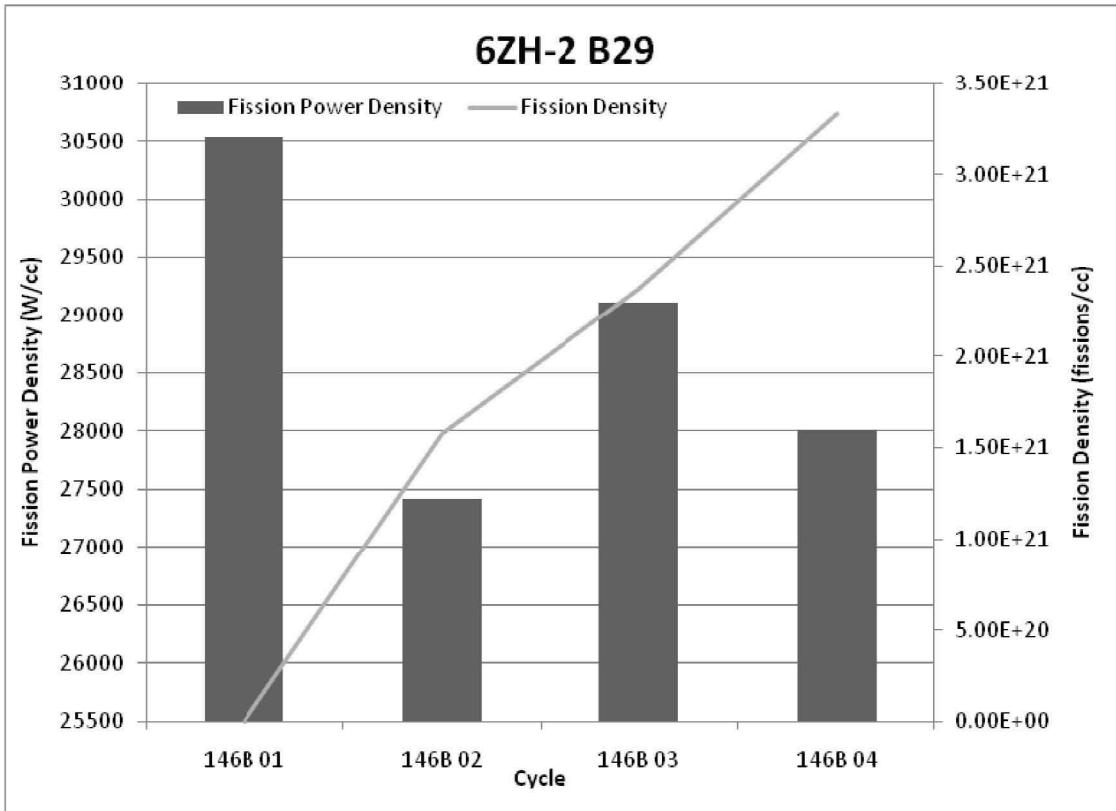


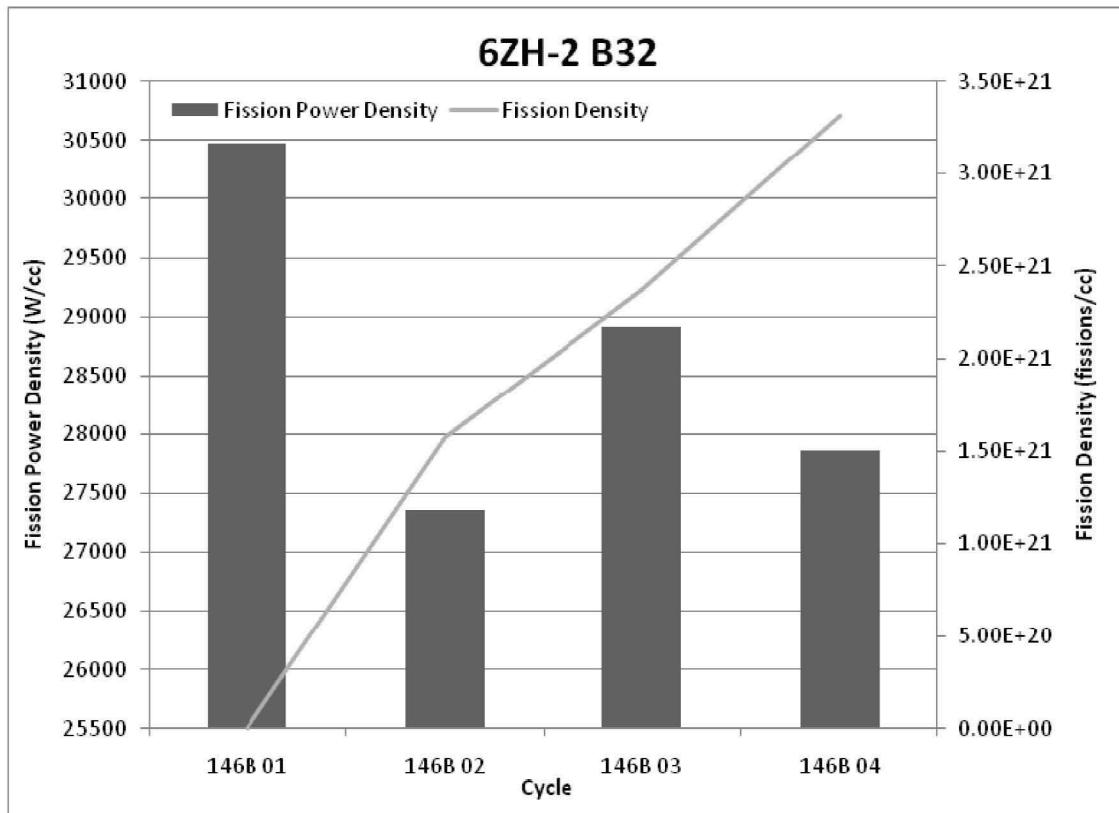
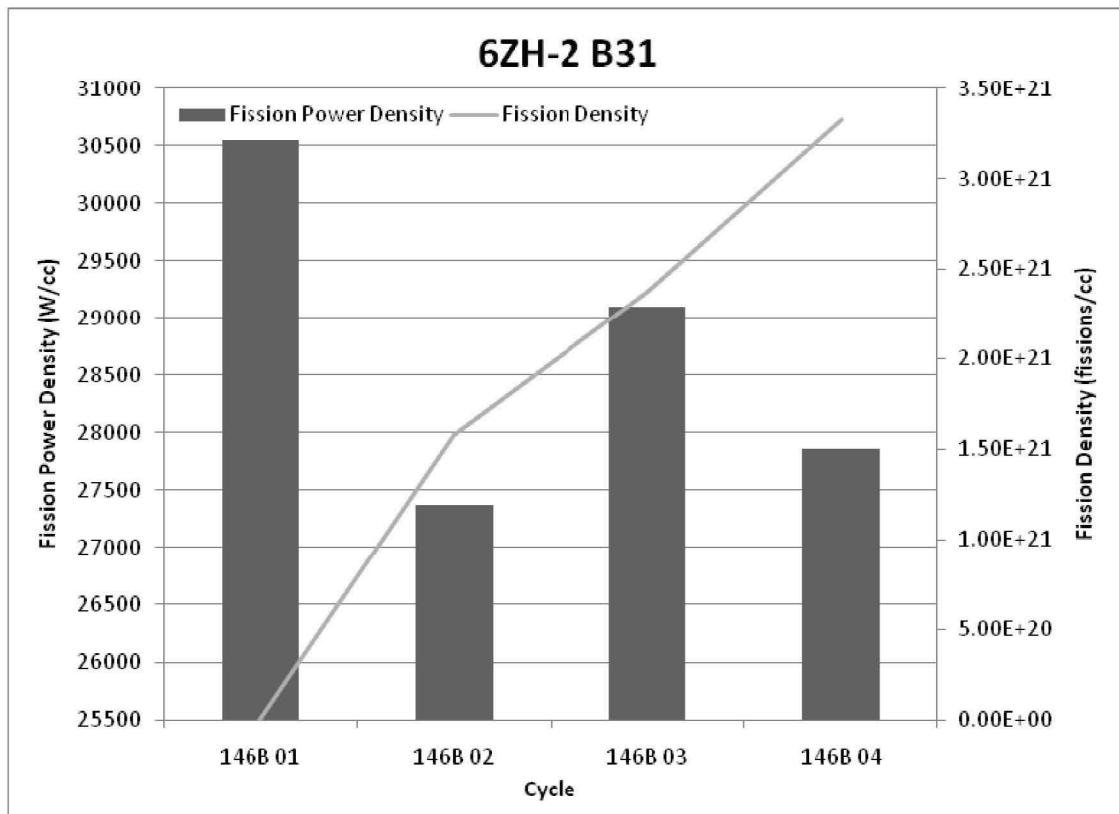


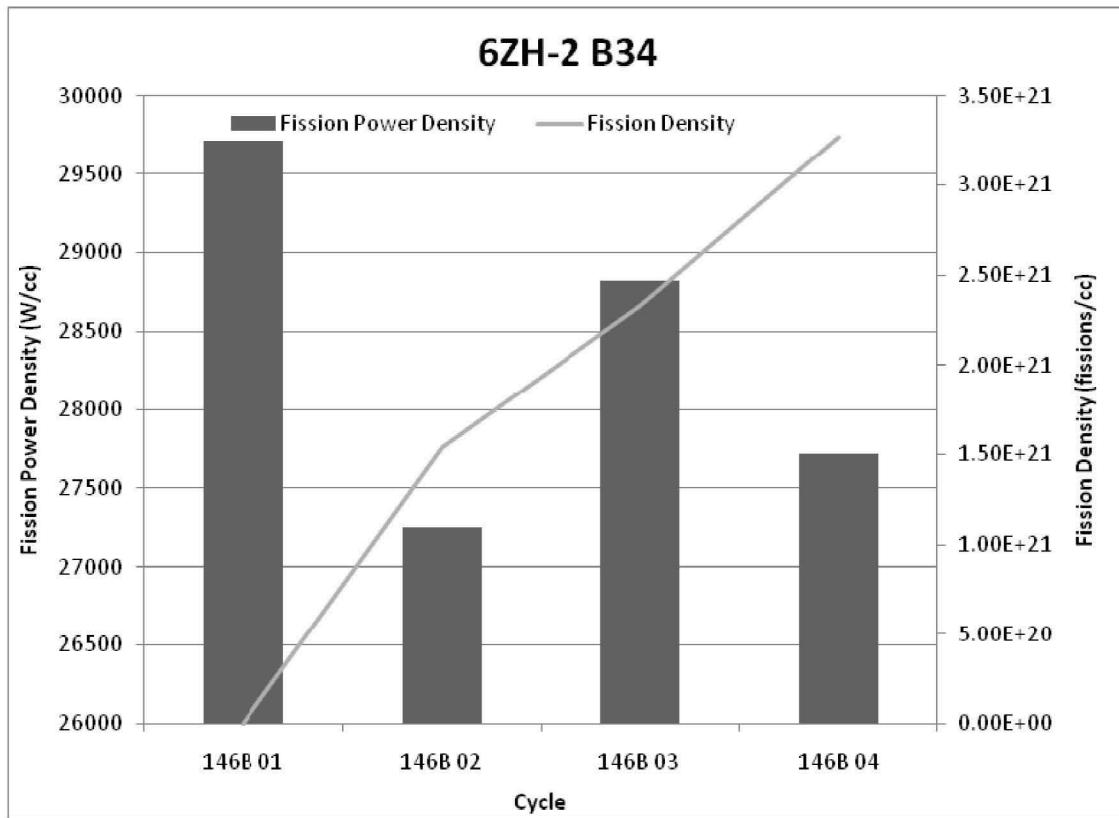
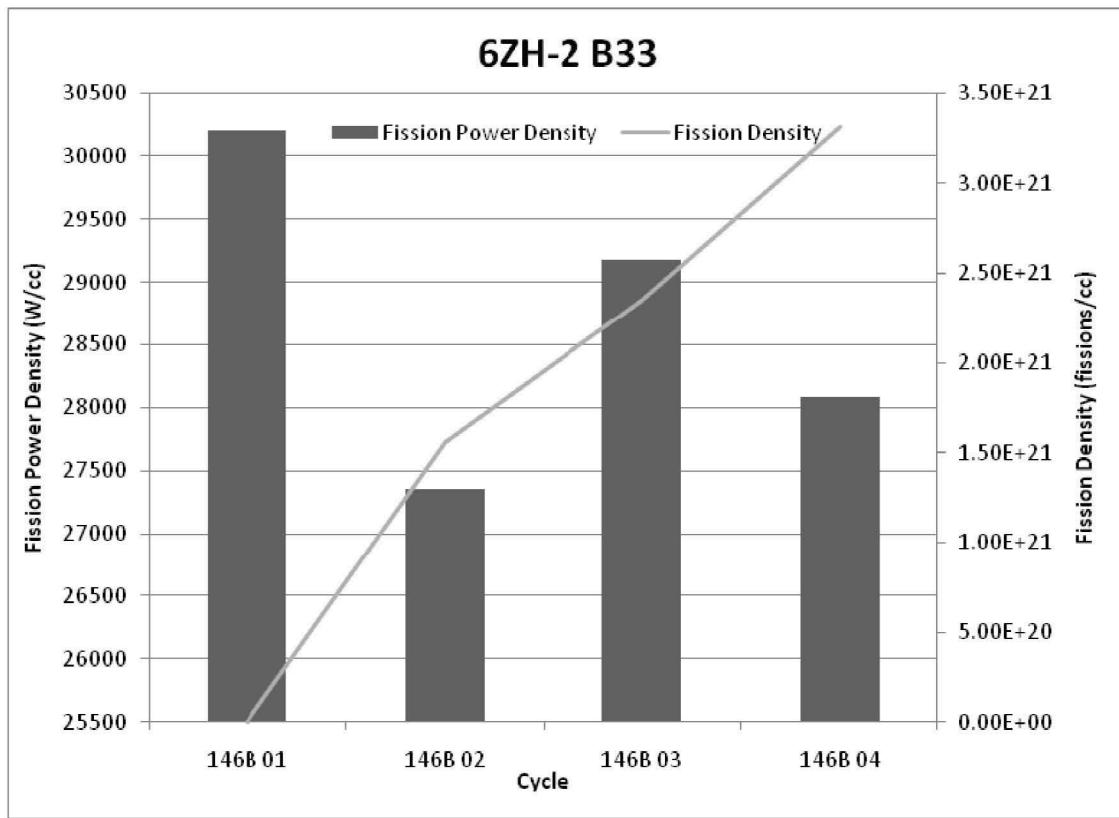


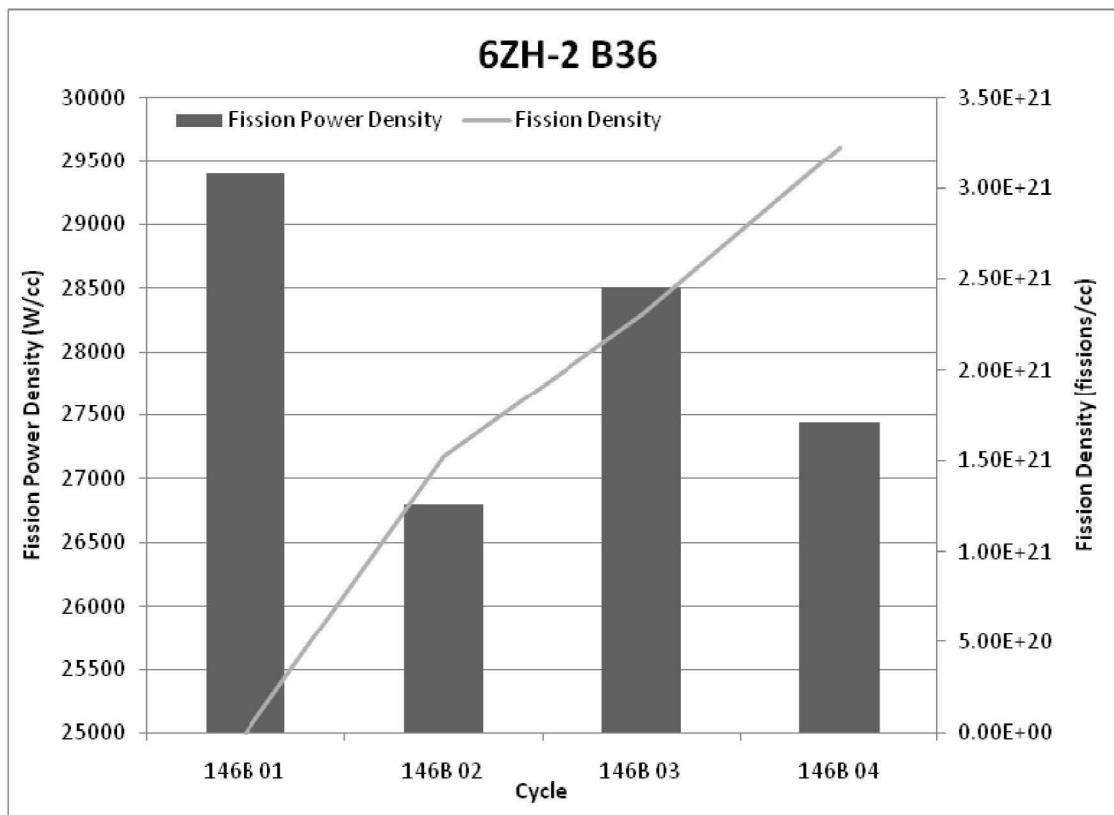
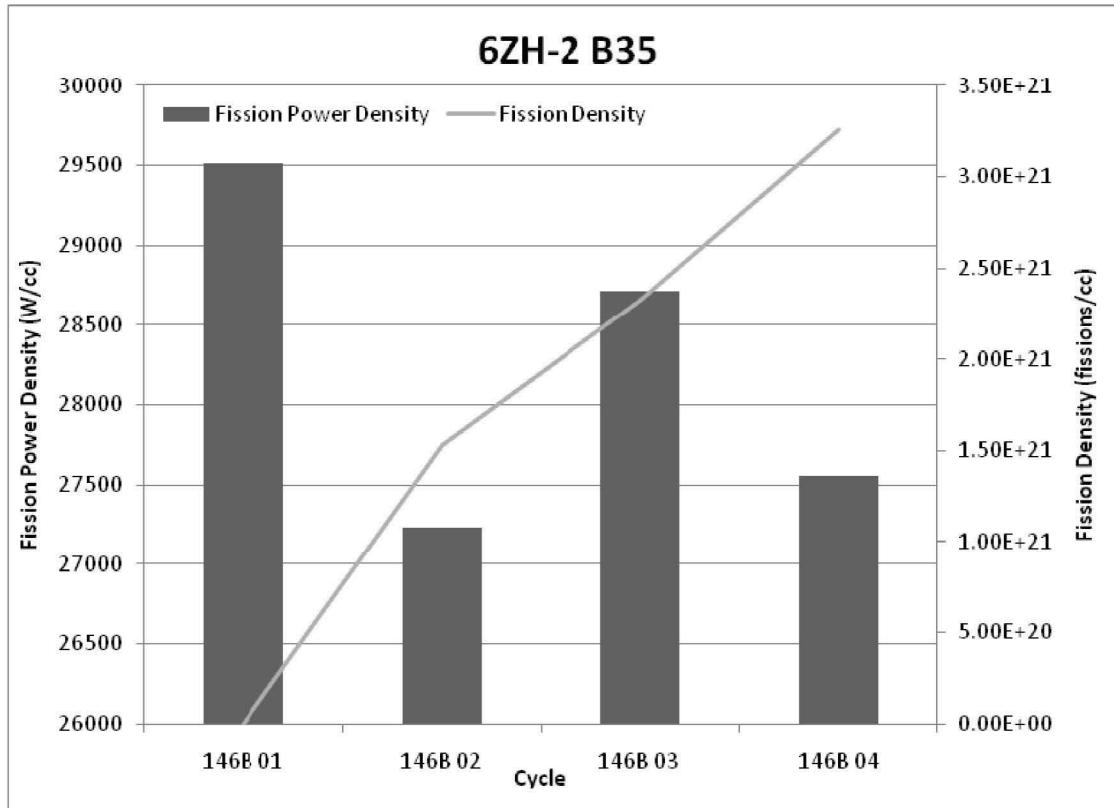


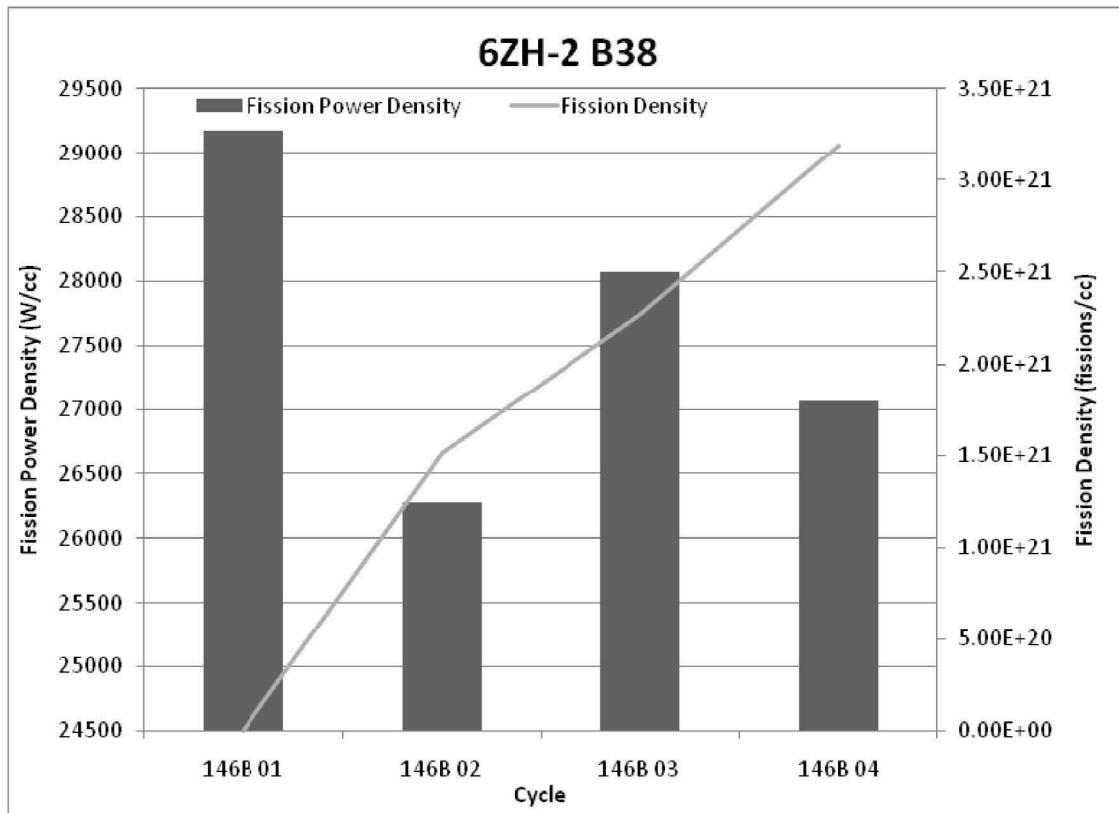
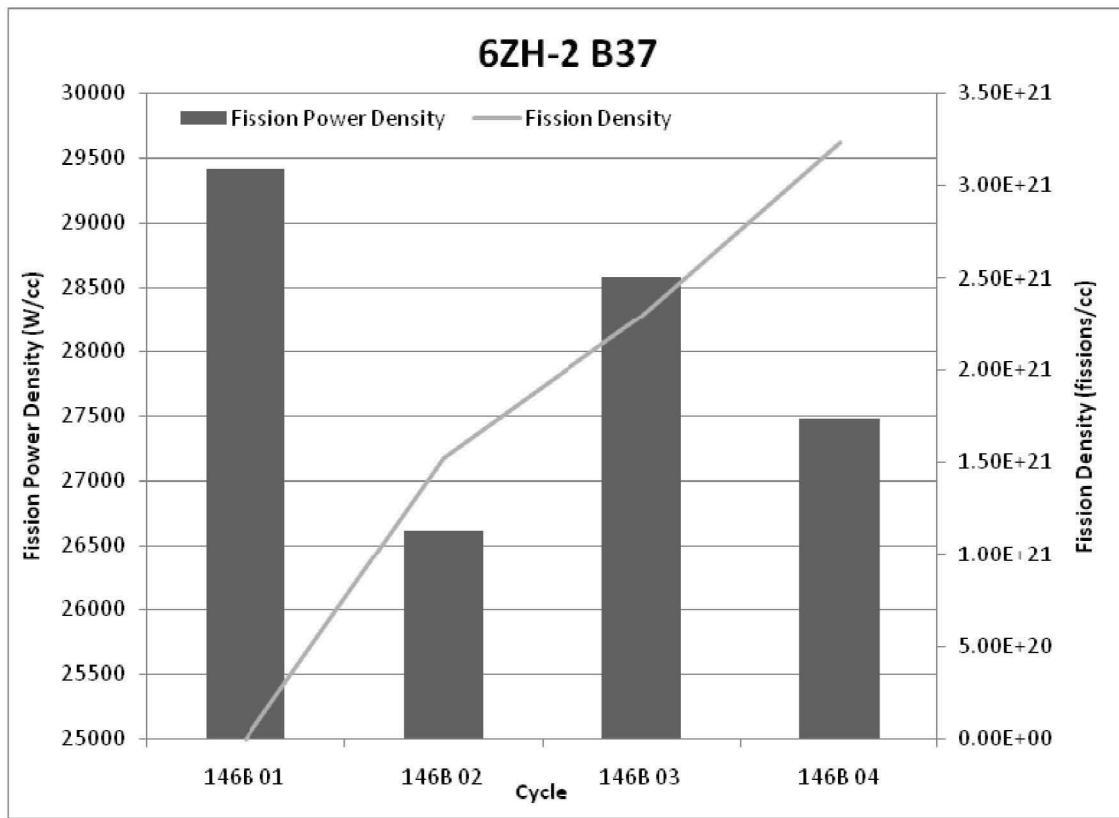


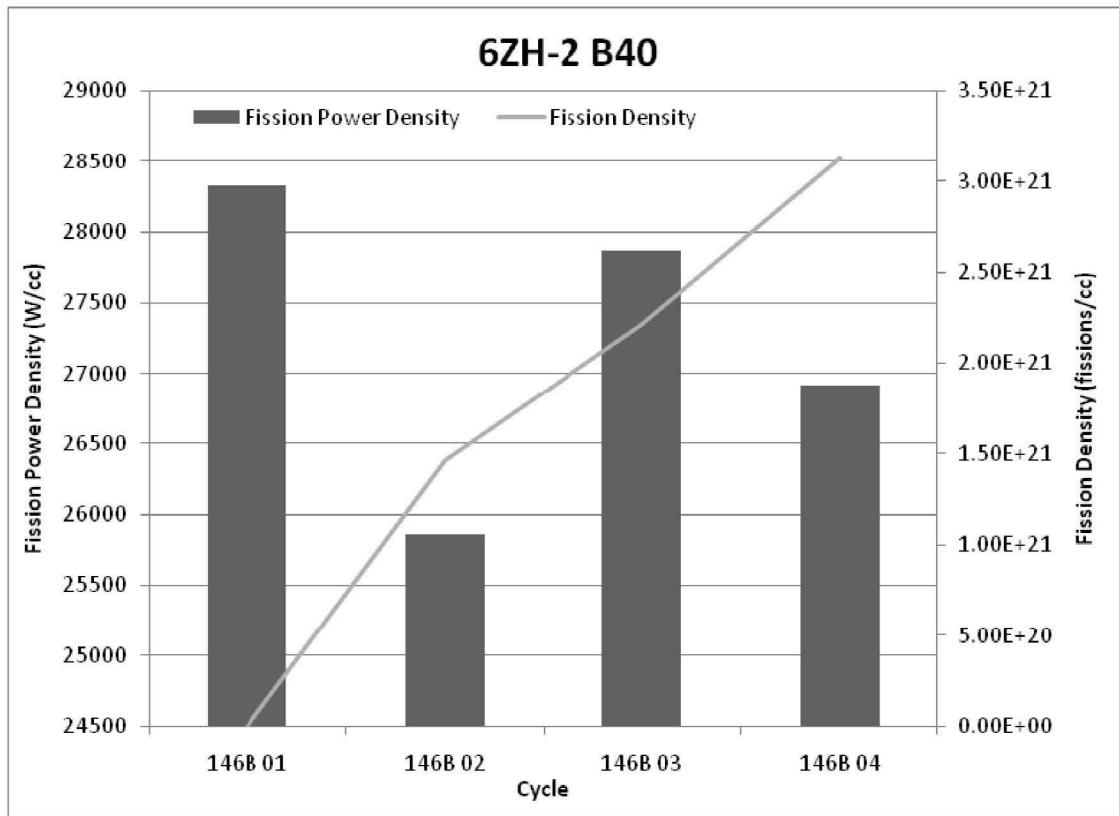
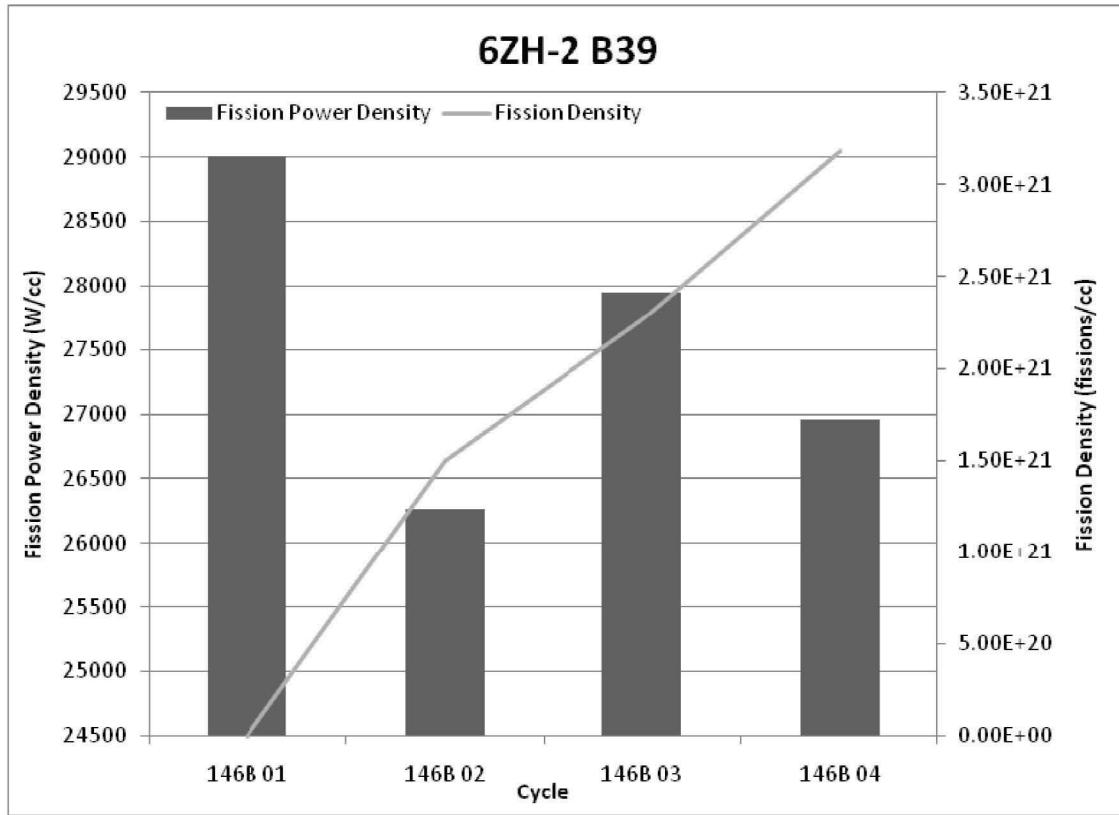


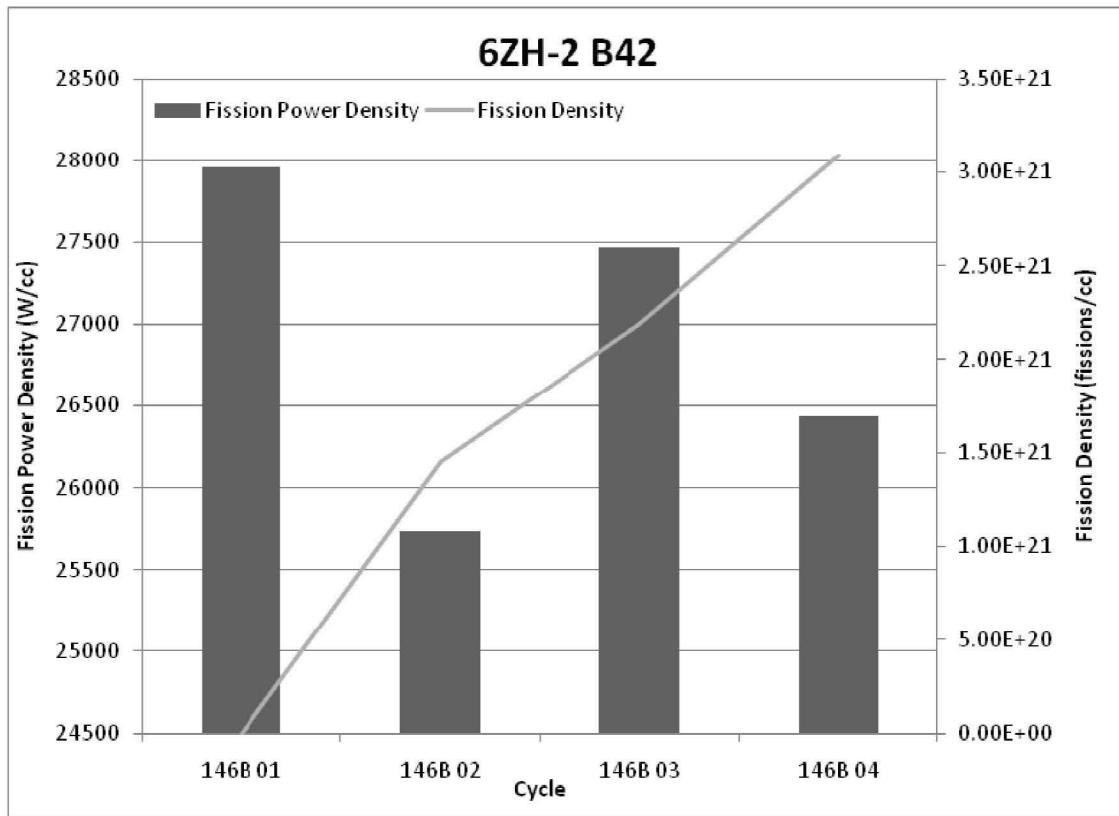
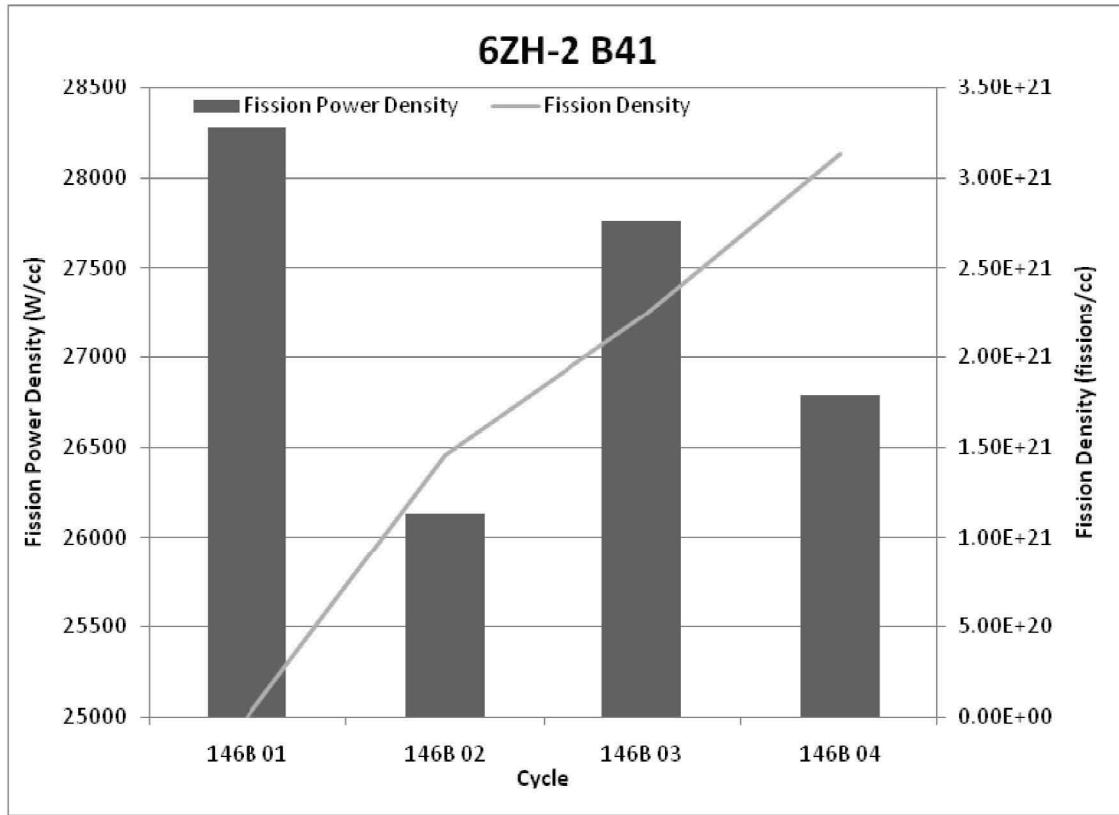


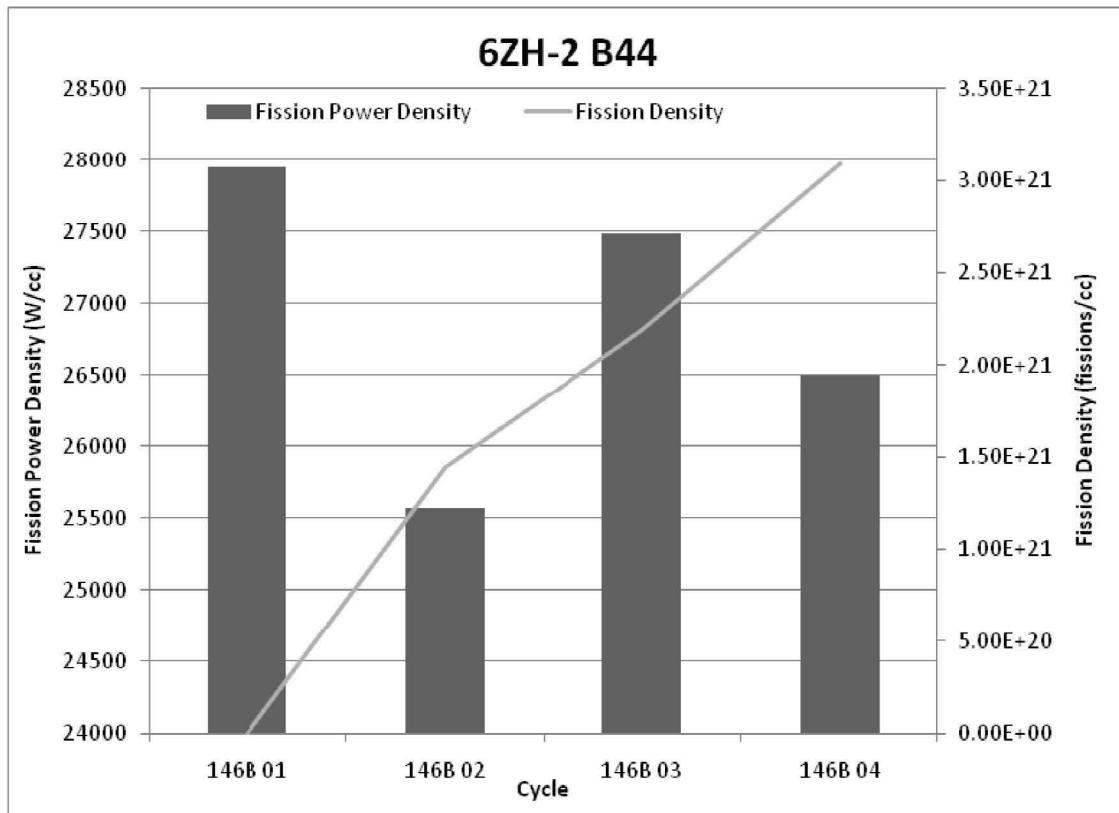
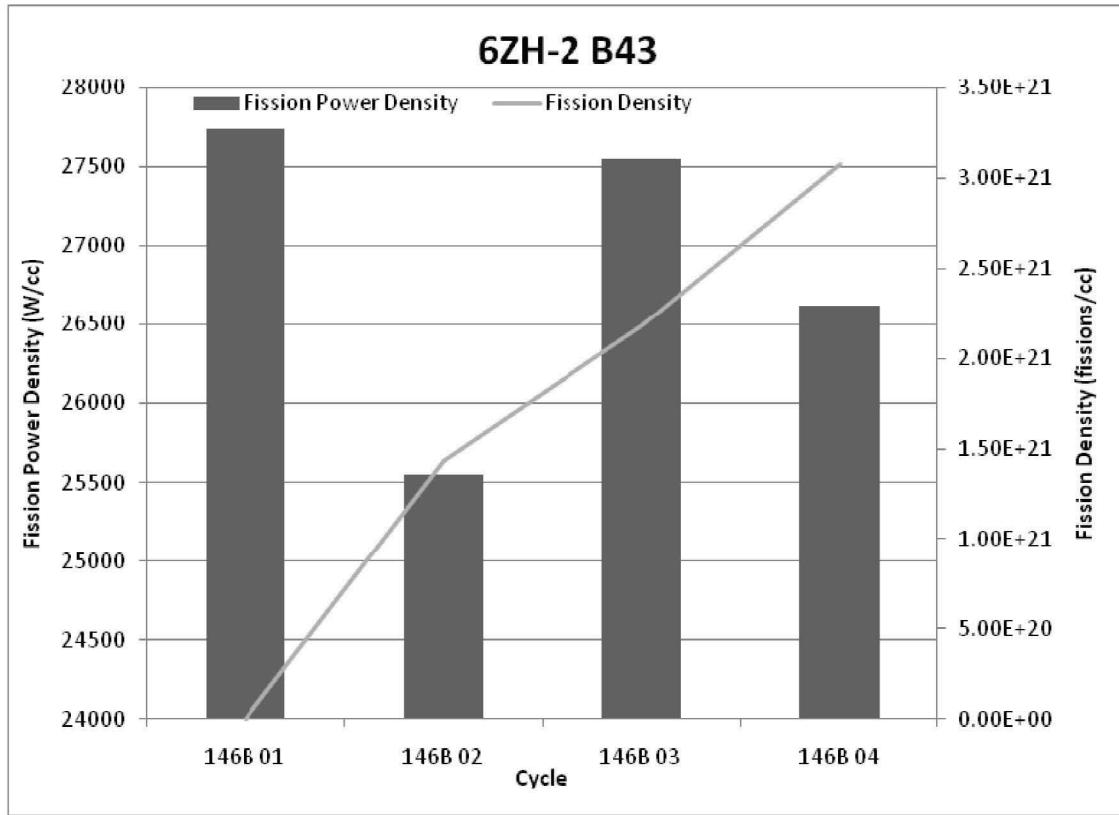


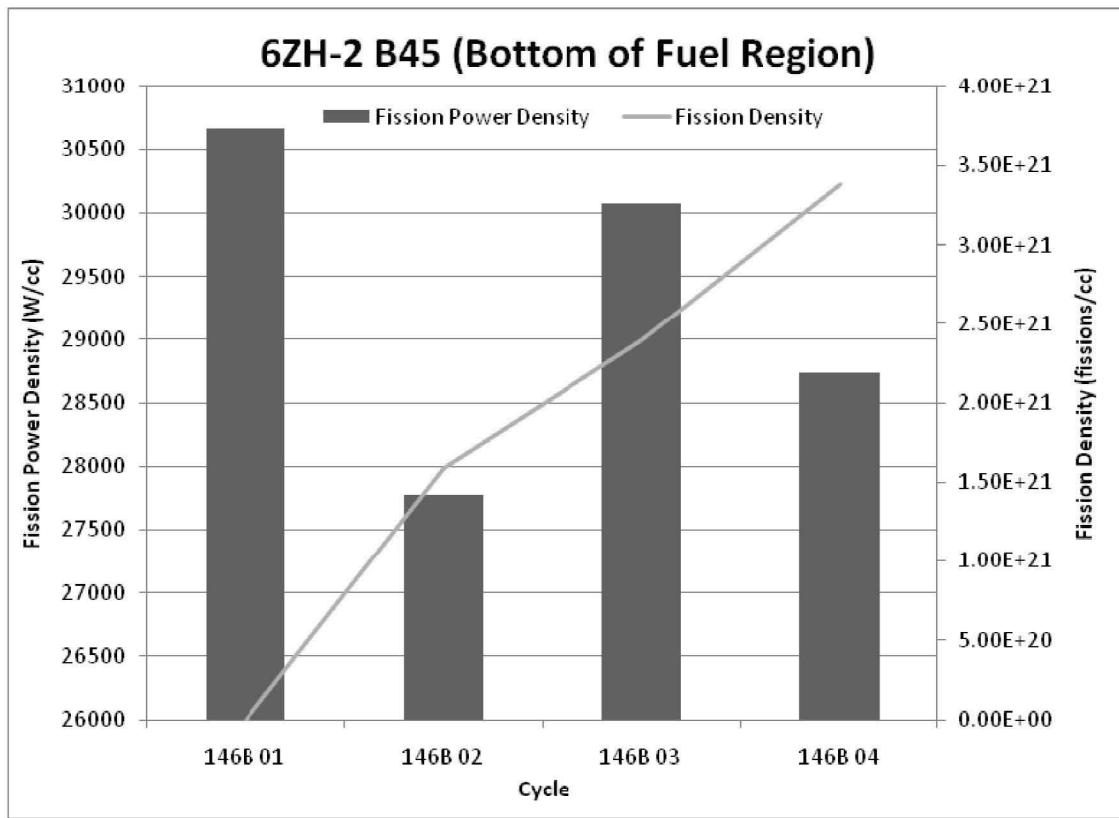












Appendix B

Plate Surface Temperatures

Appendix B

Index of Tables

| | |
|---|----|
| Table B - 1: Temperature (°C) map of the east side of plate 6ZH-1 at BOC 146B (0 EFPD)..... | 81 |
| Table B - 2: Temperature (°C) map of the west side of plate 6ZH-1 at BOC 146B (0 EFPD)..... | 82 |
| Table B - 3: Temperature (°C) map of the east side of plate 6ZH-2 at BOC 146B (0 EFPD)..... | 83 |
| Table B - 4: Temperature (°C) map of the west side of plate 3BZ at BOC 143B (0 EFPD) | 84 |
| Table B - 5: Temperature (°C) map of the east side of plate 6ZH-1 at MOC1 146B (18.0 EFPD) | 85 |
| Table B - 6: Temperature (°C) map of the west side of plate 6ZH-1 at MOC1 146B (18.0 EFPD)..... | 86 |
| Table B - 7: Temperature (°C) map of the east side of plate 6ZH-2 at MOC1 146B (18.0 EFPD)..... | 87 |
| Table B - 8: Temperature (°C) map of the west side of plate 6ZH-2 at MOC1 146B (18.0 EFPD)..... | 88 |
| Table B - 9: Temperature (°C) map of the east side of plate 6ZH-1 at MOC2 146B (28.0 EFPD)..... | 89 |
| Table B - 10: Temperature (°C) map of the west side of plate 6ZH-1 at MOC2 146B (28.0 EFPD)..... | 90 |
| Table B - 11: Temperature (°C) map of the east side of plate 6ZH-2 at MOC2 146B (28.0 EFPD)..... | 91 |
| Table B - 12: Temperature (°C) map of the west side of plate 6ZH-2 at MOC2 146B (28.0 EFPD)..... | 92 |
| Table B - 13: Temperature (°C) map of the east side of plate 6ZH-1 at EOC 146B (39.2 EFPD)..... | 93 |
| Table B - 14: Temperature (°C) map of the west side of plate 6ZH-1 at EOC 146B (39.2 EFPD)..... | 94 |
| Table B - 15: Temperature (°C) map of the east side of plate 6ZH-2 at EOC 146B (39.2 EFPD)..... | 95 |
| Table B - 16: Temperature (°C) map of the west side of plate 6ZH-2 at EOC 146B (39.2 EFPD)..... | 96 |

Table B - 1: Temperature (°C) map of the east side of plate 6ZH-1 at BOC 146B (0 EFPD).

| Length of Plate (in) | Width of Plate (inches) | | | | | | | | | |
|----------------------|-------------------------|-------|-------|-------|--------|--------|--------|-------|-------|-------|
| | 0.00 | 0.08 | 0.16 | 0.25 | 0.50 | 1.00 | 1.50 | 2.00 | 2.08 | 2.16 |
| 0.0 | 51.67 | 51.67 | 51.67 | 51.78 | 51.76 | 51.76 | 51.76 | 51.78 | 51.67 | 51.67 |
| 1.0 | 52.41 | 52.35 | 52.04 | 51.86 | 51.79 | 51.78 | 51.78 | 51.85 | 52.04 | 52.32 |
| 3.0 | 52.69 | 52.60 | 52.18 | 51.93 | 51.84 | 51.83 | 51.83 | 51.92 | 52.18 | 52.55 |
| 5.0 | 52.97 | 52.85 | 52.32 | 52.01 | 51.89 | 51.89 | 51.89 | 52.00 | 52.33 | 52.80 |
| 7.0 | 53.26 | 53.10 | 52.47 | 52.09 | 51.94 | 51.94 | 51.94 | 52.07 | 52.46 | 53.02 |
| 9.0 | 53.53 | 53.35 | 52.61 | 52.17 | 52.00 | 51.99 | 51.99 | 52.16 | 52.63 | 53.29 |
| 11.0 | 53.90 | 53.72 | 52.92 | 52.94 | 54.82 | 55.79 | 55.70 | 52.92 | 52.92 | 53.62 |
| 11.5 | 54.25 | 54.29 | 53.84 | 57.58 | 139.07 | 147.37 | 147.16 | 57.57 | 53.79 | 54.21 |
| 12.0 | 54.41 | 54.45 | 53.98 | 57.78 | 133.93 | 142.06 | 141.81 | 57.77 | 53.92 | 54.38 |
| 13.0 | 54.61 | 54.66 | 54.14 | 58.06 | 135.02 | 143.32 | 143.02 | 58.05 | 54.09 | 54.59 |
| 14.0 | 54.82 | 54.89 | 54.35 | 58.46 | 137.72 | 146.29 | 145.95 | 58.45 | 54.29 | 54.81 |
| 15.0 | 55.04 | 55.12 | 54.56 | 58.80 | 139.06 | 147.80 | 147.42 | 58.78 | 54.49 | 55.02 |
| 16.0 | 55.26 | 55.36 | 54.79 | 59.17 | 140.80 | 149.74 | 149.31 | 59.15 | 54.71 | 55.25 |
| 17.0 | 55.49 | 55.61 | 55.04 | 59.57 | 142.81 | 151.97 | 151.51 | 59.56 | 54.98 | 55.54 |
| 18.0 | 55.72 | 55.86 | 55.28 | 59.90 | 143.37 | 152.64 | 152.13 | 59.89 | 55.23 | 55.80 |
| 19.0 | 55.95 | 56.11 | 55.55 | 60.29 | 144.82 | 154.27 | 153.72 | 60.28 | 55.48 | 56.04 |
| 20.0 | 56.19 | 56.38 | 55.83 | 60.73 | 146.85 | 156.50 | 155.91 | 60.71 | 55.75 | 56.28 |
| 21.0 | 56.42 | 56.63 | 56.11 | 61.07 | 147.24 | 156.98 | 156.36 | 61.05 | 56.02 | 56.54 |
| 22.0 | 56.65 | 56.90 | 56.39 | 61.44 | 147.82 | 157.67 | 157.00 | 61.42 | 56.31 | 56.81 |
| 23.0 | 56.88 | 57.16 | 56.69 | 61.84 | 149.02 | 159.01 | 158.31 | 61.82 | 56.60 | 57.08 |
| 24.0 | 57.11 | 57.42 | 56.97 | 62.17 | 148.90 | 158.94 | 158.20 | 62.15 | 56.87 | 57.32 |
| 25.0 | 57.34 | 57.68 | 57.27 | 62.52 | 149.02 | 159.12 | 158.34 | 62.50 | 57.16 | 57.59 |
| 26.0 | 57.56 | 57.94 | 57.57 | 62.86 | 148.87 | 159.01 | 158.20 | 62.85 | 57.47 | 57.87 |
| 27.0 | 57.78 | 58.20 | 57.86 | 63.19 | 148.36 | 158.52 | 157.68 | 63.18 | 57.77 | 58.15 |
| 28.0 | 58.00 | 58.45 | 58.16 | 63.51 | 147.89 | 158.05 | 157.18 | 63.49 | 58.05 | 58.38 |
| 29.0 | 58.20 | 58.69 | 58.44 | 63.76 | 146.27 | 156.36 | 155.45 | 63.74 | 58.32 | 58.60 |
| 30.0 | 58.41 | 58.94 | 58.75 | 64.16 | 147.02 | 157.20 | 156.26 | 64.14 | 58.63 | 58.86 |
| 31.0 | 58.61 | 59.18 | 59.05 | 64.46 | 146.21 | 156.36 | 155.40 | 64.44 | 58.93 | 59.11 |
| 32.0 | 58.81 | 59.42 | 59.34 | 64.75 | 145.18 | 155.29 | 154.30 | 64.73 | 59.22 | 59.35 |
| 33.0 | 59.00 | 59.65 | 59.64 | 65.09 | 144.73 | 154.84 | 153.82 | 65.07 | 59.50 | 59.57 |
| 33.5 | 59.02 | 59.69 | 59.73 | 65.19 | 150.36 | 160.68 | 159.69 | 65.17 | 59.59 | 59.62 |
| 35.0 | 58.93 | 59.41 | 59.18 | 60.67 | 63.99 | 67.23 | 65.98 | 60.65 | 59.10 | 59.34 |
| 37.0 | 59.11 | 59.65 | 59.55 | 60.99 | 63.78 | 66.82 | 65.64 | 60.97 | 59.47 | 59.58 |
| 39.0 | 59.24 | 59.81 | 59.84 | 61.28 | 63.72 | 66.57 | 65.46 | 61.25 | 59.75 | 59.74 |
| 41.0 | 59.31 | 59.92 | 60.07 | 61.51 | 63.69 | 66.36 | 65.31 | 61.49 | 59.98 | 59.87 |
| 43.0 | 59.33 | 59.98 | 60.25 | 61.71 | 63.67 | 66.16 | 65.18 | 61.69 | 60.15 | 59.93 |
| 45.0 | 59.30 | 59.98 | 60.35 | 61.83 | 63.66 | 66.01 | 65.09 | 61.82 | 60.27 | 59.99 |

Table B - 2: Temperature (°C) map of the west side of plate 6ZH-1 at BOC 146B (0 EFPD).

| Length of Plate (in) | Width of Plate (inches) | | | | | | | | | |
|----------------------|-------------------------|-------|-------|-------|--------|--------|--------|-------|-------|-------|
| | 0.00 | 0.08 | 0.16 | 0.25 | 0.50 | 1.00 | 1.50 | 2.00 | 2.08 | 2.16 |
| 0.0 | 51.67 | 51.67 | 51.67 | 51.77 | 51.76 | 51.76 | 51.76 | 51.77 | 51.67 | 51.67 |
| 1.0 | 52.50 | 52.46 | 52.11 | 51.85 | 51.79 | 51.78 | 51.78 | 51.85 | 52.07 | 52.44 |
| 3.0 | 52.80 | 52.75 | 52.27 | 51.92 | 51.84 | 51.83 | 51.83 | 51.92 | 52.20 | 52.68 |
| 5.0 | 53.11 | 53.03 | 52.43 | 52.00 | 51.89 | 51.88 | 51.88 | 52.00 | 52.36 | 52.96 |
| 7.0 | 53.41 | 53.31 | 52.59 | 52.08 | 51.94 | 51.93 | 51.93 | 52.07 | 52.49 | 53.18 |
| 9.0 | 53.71 | 53.58 | 52.75 | 52.15 | 51.99 | 51.98 | 51.98 | 52.15 | 52.68 | 53.54 |
| 11.0 | 54.12 | 54.01 | 53.10 | 52.92 | 54.82 | 55.80 | 55.70 | 52.91 | 52.98 | 53.88 |
| 11.5 | 54.54 | 54.69 | 54.03 | 57.58 | 139.10 | 147.40 | 147.19 | 57.57 | 53.96 | 54.55 |
| 12.0 | 54.71 | 54.89 | 54.19 | 57.80 | 133.99 | 142.14 | 141.89 | 57.78 | 54.11 | 54.73 |
| 13.0 | 54.93 | 55.14 | 54.42 | 58.13 | 135.17 | 143.53 | 143.20 | 58.11 | 54.35 | 54.99 |
| 14.0 | 55.17 | 55.40 | 54.69 | 58.59 | 137.98 | 146.66 | 146.27 | 58.58 | 54.62 | 55.26 |
| 15.0 | 55.41 | 55.68 | 54.98 | 59.00 | 139.45 | 148.35 | 147.90 | 58.98 | 54.88 | 55.48 |
| 16.0 | 55.65 | 55.96 | 55.29 | 59.45 | 141.33 | 150.49 | 149.97 | 59.43 | 55.18 | 55.73 |
| 17.0 | 55.91 | 56.26 | 55.63 | 59.94 | 143.50 | 152.92 | 152.35 | 59.92 | 55.56 | 56.14 |
| 18.0 | 56.16 | 56.56 | 55.97 | 60.36 | 144.21 | 153.80 | 153.16 | 60.34 | 55.92 | 56.47 |
| 19.0 | 56.41 | 56.87 | 56.33 | 60.84 | 145.82 | 155.64 | 154.93 | 60.82 | 56.26 | 56.74 |
| 20.0 | 56.67 | 57.19 | 56.71 | 61.37 | 148.00 | 158.08 | 157.31 | 61.35 | 56.61 | 56.98 |
| 21.0 | 56.93 | 57.50 | 57.09 | 61.82 | 148.55 | 158.78 | 157.95 | 61.79 | 56.99 | 57.26 |
| 22.0 | 57.19 | 57.81 | 57.48 | 62.28 | 149.30 | 159.68 | 158.79 | 62.26 | 57.39 | 57.61 |
| 23.0 | 57.44 | 58.13 | 57.89 | 62.79 | 150.66 | 161.24 | 160.29 | 62.77 | 57.80 | 57.92 |
| 24.0 | 57.70 | 58.45 | 58.29 | 63.24 | 150.71 | 161.39 | 160.38 | 63.21 | 58.19 | 58.20 |
| 25.0 | 57.95 | 58.77 | 58.71 | 63.70 | 151.00 | 161.79 | 160.72 | 63.67 | 58.61 | 58.53 |
| 26.0 | 58.20 | 59.09 | 59.13 | 64.16 | 151.02 | 161.90 | 160.78 | 64.13 | 59.06 | 58.92 |
| 27.0 | 58.44 | 59.40 | 59.55 | 64.60 | 150.69 | 161.64 | 160.46 | 64.57 | 59.51 | 59.28 |
| 28.0 | 58.68 | 59.71 | 59.97 | 65.03 | 150.39 | 161.39 | 160.16 | 65.01 | 59.91 | 59.53 |
| 29.0 | 58.91 | 60.01 | 60.39 | 65.41 | 148.95 | 159.93 | 158.65 | 65.38 | 60.30 | 59.75 |
| 30.0 | 59.14 | 60.32 | 60.83 | 65.93 | 149.87 | 160.97 | 159.65 | 65.90 | 60.74 | 60.05 |
| 31.0 | 59.36 | 60.62 | 61.26 | 66.35 | 149.23 | 160.36 | 158.98 | 66.32 | 61.18 | 60.38 |
| 32.0 | 59.58 | 60.91 | 61.68 | 66.77 | 148.38 | 159.51 | 158.09 | 66.73 | 61.61 | 60.67 |
| 33.0 | 59.79 | 61.21 | 62.12 | 67.23 | 148.09 | 159.25 | 157.79 | 67.19 | 62.02 | 60.91 |
| 33.5 | 59.82 | 61.26 | 62.26 | 67.38 | 153.74 | 165.10 | 163.67 | 67.34 | 62.18 | 60.98 |
| 35.0 | 59.68 | 60.92 | 61.87 | 63.03 | 67.26 | 71.56 | 69.87 | 63.00 | 61.78 | 60.73 |
| 37.0 | 59.88 | 61.20 | 62.37 | 63.44 | 67.09 | 71.12 | 69.52 | 63.41 | 62.28 | 61.01 |
| 39.0 | 60.02 | 61.41 | 62.78 | 63.80 | 67.02 | 70.79 | 69.29 | 63.77 | 62.67 | 61.16 |
| 41.0 | 60.09 | 61.55 | 63.10 | 64.10 | 66.97 | 70.49 | 69.09 | 64.07 | 63.01 | 61.33 |
| 43.0 | 60.12 | 61.63 | 63.35 | 64.35 | 66.94 | 70.21 | 68.91 | 64.32 | 63.27 | 61.39 |
| 45.0 | 60.08 | 61.63 | 63.50 | 64.51 | 66.91 | 69.99 | 68.77 | 64.48 | 63.49 | 61.54 |

Table B - 3: Temperature (°C) map of the east side of plate 6ZH-2 at BOC 146B (0 EFPD).

| Length of Plate (in) | Width of Plate (inches) | | | | | | | | | |
|----------------------|-------------------------|-------|-------|-------|--------|--------|--------|-------|-------|-------|
| | 0.00 | 0.08 | 0.16 | 0.25 | 0.50 | 1.00 | 1.50 | 2.00 | 2.08 | 2.16 |
| 0.0 | 51.67 | 51.67 | 51.67 | 51.80 | 51.76 | 51.76 | 51.76 | 51.80 | 51.67 | 51.67 |
| 1.0 | 52.87 | 52.70 | 52.22 | 51.92 | 51.79 | 51.79 | 51.79 | 51.89 | 52.17 | 52.59 |
| 3.0 | 53.27 | 53.04 | 52.41 | 52.02 | 51.84 | 51.84 | 51.84 | 51.96 | 52.30 | 52.80 |
| 5.0 | 53.66 | 53.38 | 52.59 | 52.12 | 51.90 | 51.89 | 51.89 | 52.06 | 52.48 | 53.10 |
| 7.0 | 54.05 | 53.71 | 52.78 | 52.22 | 51.96 | 51.95 | 51.95 | 52.14 | 52.61 | 53.33 |
| 9.0 | 54.42 | 54.02 | 52.96 | 52.33 | 52.03 | 52.01 | 52.01 | 52.29 | 52.93 | 53.92 |
| 11.0 | 54.90 | 54.49 | 53.33 | 53.10 | 54.81 | 55.76 | 55.67 | 53.00 | 53.15 | 54.09 |
| 11.5 | 55.33 | 55.18 | 54.30 | 57.67 | 137.62 | 145.80 | 145.59 | 57.57 | 54.06 | 54.77 |
| 12.0 | 55.52 | 55.38 | 54.46 | 57.82 | 131.60 | 139.56 | 139.30 | 57.71 | 54.20 | 54.89 |
| 13.0 | 55.78 | 55.65 | 54.70 | 58.21 | 133.57 | 141.78 | 141.46 | 58.11 | 54.46 | 55.19 |
| 14.0 | 56.04 | 55.93 | 54.98 | 58.66 | 135.92 | 144.43 | 144.05 | 58.55 | 54.73 | 55.47 |
| 15.0 | 56.31 | 56.22 | 55.29 | 59.12 | 138.18 | 146.96 | 146.52 | 59.00 | 54.99 | 55.68 |
| 16.0 | 56.58 | 56.53 | 55.61 | 59.59 | 140.18 | 149.23 | 148.72 | 59.46 | 55.29 | 55.92 |
| 17.0 | 56.86 | 56.84 | 55.96 | 60.07 | 142.04 | 151.34 | 150.76 | 59.98 | 55.76 | 56.54 |
| 18.0 | 57.13 | 57.15 | 56.32 | 60.57 | 144.05 | 153.61 | 152.97 | 60.52 | 56.20 | 56.99 |
| 19.0 | 57.40 | 57.46 | 56.67 | 60.94 | 143.72 | 153.36 | 152.66 | 60.85 | 56.47 | 57.16 |
| 20.0 | 57.68 | 57.79 | 57.06 | 61.50 | 146.21 | 156.14 | 155.38 | 61.36 | 56.74 | 57.23 |
| 21.0 | 57.95 | 58.11 | 57.45 | 61.93 | 146.50 | 156.57 | 155.74 | 61.79 | 57.09 | 57.46 |
| 22.0 | 58.22 | 58.43 | 57.85 | 62.41 | 147.31 | 157.53 | 156.65 | 62.27 | 57.50 | 57.81 |
| 23.0 | 58.48 | 58.75 | 58.25 | 62.87 | 147.79 | 158.14 | 157.20 | 62.73 | 57.90 | 58.12 |
| 24.0 | 58.75 | 59.08 | 58.67 | 63.37 | 148.76 | 159.28 | 158.27 | 63.22 | 58.28 | 58.39 |
| 25.0 | 59.00 | 59.40 | 59.09 | 63.85 | 149.19 | 159.84 | 158.77 | 63.70 | 58.72 | 58.78 |
| 26.0 | 59.25 | 59.71 | 59.51 | 64.28 | 148.78 | 159.49 | 158.37 | 64.18 | 59.26 | 59.35 |
| 27.0 | 59.49 | 60.03 | 59.94 | 64.79 | 149.44 | 160.28 | 159.10 | 64.73 | 59.78 | 59.83 |
| 28.0 | 59.72 | 60.33 | 60.36 | 65.17 | 148.15 | 158.97 | 157.74 | 65.06 | 60.09 | 59.94 |
| 29.0 | 59.95 | 60.63 | 60.79 | 65.61 | 147.89 | 158.77 | 157.49 | 65.46 | 60.39 | 59.98 |
| 30.0 | 60.17 | 60.93 | 61.22 | 66.08 | 147.81 | 158.75 | 157.42 | 65.91 | 60.80 | 60.22 |
| 31.0 | 60.37 | 61.21 | 61.64 | 66.45 | 146.28 | 157.18 | 155.80 | 66.30 | 61.25 | 60.56 |
| 32.0 | 60.58 | 61.50 | 62.07 | 66.89 | 145.86 | 156.79 | 155.37 | 66.73 | 61.67 | 60.83 |
| 33.0 | 60.77 | 61.78 | 62.50 | 67.39 | 146.29 | 157.30 | 155.84 | 67.23 | 62.06 | 61.04 |
| 33.5 | 60.79 | 61.82 | 62.65 | 67.57 | 152.26 | 163.49 | 162.06 | 67.41 | 62.23 | 61.18 |
| 35.0 | 60.62 | 61.48 | 62.23 | 63.33 | 67.39 | 71.64 | 69.96 | 63.20 | 61.96 | 61.06 |
| 37.0 | 60.76 | 61.73 | 62.72 | 63.75 | 67.23 | 71.22 | 69.64 | 63.62 | 62.45 | 61.33 |
| 39.0 | 60.83 | 61.89 | 63.10 | 64.10 | 67.17 | 70.90 | 69.42 | 63.94 | 62.76 | 61.30 |
| 41.0 | 60.83 | 61.99 | 63.41 | 64.39 | 67.14 | 70.62 | 69.23 | 64.25 | 63.09 | 61.45 |
| 43.0 | 60.78 | 62.02 | 63.64 | 64.63 | 67.11 | 70.34 | 69.05 | 64.48 | 63.31 | 61.50 |
| 45.0 | 60.67 | 61.98 | 63.78 | 64.78 | 67.09 | 70.13 | 68.91 | 64.72 | 63.67 | 61.89 |

Table B - 4: Temperature (°C) map of the west side of plate 3BZ at BOC 143B (0 EFPD).

| Length of Plate (in) | Width of Plate (inches) | | | | | | | | | |
|----------------------|-------------------------|-------|-------|-------|--------|--------|--------|-------|-------|-------|
| | 0.00 | 0.08 | 0.16 | 0.25 | 0.50 | 1.00 | 1.50 | 2.00 | 2.08 | 2.16 |
| 0.0 | 51.67 | 51.67 | 51.67 | 51.79 | 51.76 | 51.76 | 51.76 | 51.79 | 51.67 | 51.67 |
| 1.0 | 53.24 | 53.13 | 52.44 | 51.90 | 51.79 | 51.79 | 51.79 | 51.88 | 52.25 | 52.94 |
| 3.0 | 53.73 | 53.58 | 52.69 | 52.00 | 51.85 | 51.85 | 51.85 | 51.96 | 52.37 | 53.00 |
| 5.0 | 54.20 | 54.00 | 52.94 | 52.10 | 51.92 | 51.91 | 51.91 | 52.07 | 52.55 | 53.28 |
| 7.0 | 54.66 | 54.42 | 53.18 | 52.21 | 51.99 | 51.98 | 51.98 | 52.16 | 52.73 | 53.62 |
| 9.0 | 55.10 | 54.81 | 53.42 | 52.32 | 52.07 | 52.05 | 52.06 | 52.30 | 53.26 | 54.92 |
| 11.0 | 55.62 | 55.33 | 53.82 | 53.11 | 54.85 | 55.80 | 55.71 | 53.04 | 53.27 | 54.44 |
| 11.5 | 56.02 | 55.95 | 54.69 | 57.67 | 137.65 | 145.81 | 145.61 | 57.60 | 54.16 | 54.98 |
| 12.0 | 56.21 | 56.15 | 54.84 | 57.81 | 131.60 | 139.53 | 139.29 | 57.73 | 54.27 | 54.97 |
| 13.0 | 56.49 | 56.42 | 55.05 | 58.15 | 133.48 | 141.63 | 141.34 | 58.08 | 54.48 | 55.23 |
| 14.0 | 56.75 | 56.70 | 55.29 | 58.54 | 135.73 | 144.12 | 143.78 | 58.47 | 54.72 | 55.53 |
| 15.0 | 57.04 | 56.99 | 55.54 | 58.94 | 137.86 | 146.48 | 146.10 | 58.85 | 54.91 | 55.74 |
| 16.0 | 57.32 | 57.29 | 55.80 | 59.34 | 139.73 | 148.55 | 148.13 | 59.23 | 55.16 | 56.01 |
| 17.0 | 57.59 | 57.58 | 56.07 | 59.74 | 141.44 | 150.45 | 149.99 | 59.67 | 55.62 | 57.03 |
| 18.0 | 57.87 | 57.88 | 56.36 | 60.15 | 143.31 | 152.52 | 152.02 | 60.11 | 56.17 | 57.83 |
| 19.0 | 58.13 | 58.16 | 56.63 | 60.44 | 142.81 | 152.06 | 151.52 | 60.37 | 56.17 | 57.63 |
| 20.0 | 58.41 | 58.46 | 56.94 | 60.91 | 145.16 | 154.63 | 154.06 | 60.80 | 56.22 | 57.12 |
| 21.0 | 58.68 | 58.76 | 57.23 | 61.26 | 145.29 | 154.84 | 154.22 | 61.14 | 56.49 | 57.20 |
| 22.0 | 58.92 | 59.03 | 57.53 | 61.63 | 145.94 | 155.59 | 154.94 | 61.53 | 56.78 | 57.38 |
| 23.0 | 59.17 | 59.31 | 57.83 | 62.00 | 146.26 | 155.99 | 155.30 | 61.89 | 57.07 | 57.62 |
| 24.0 | 59.42 | 59.59 | 58.14 | 62.40 | 147.07 | 156.91 | 156.18 | 62.27 | 57.36 | 57.93 |
| 25.0 | 59.64 | 59.85 | 58.44 | 62.77 | 147.34 | 157.25 | 156.49 | 62.65 | 57.66 | 58.35 |
| 26.0 | 59.85 | 60.10 | 58.73 | 63.10 | 146.76 | 156.68 | 155.88 | 63.01 | 58.20 | 59.43 |
| 27.0 | 60.07 | 60.36 | 59.04 | 63.49 | 147.26 | 157.25 | 156.43 | 63.42 | 58.84 | 60.27 |
| 28.0 | 60.27 | 60.59 | 59.32 | 63.77 | 145.79 | 155.72 | 154.86 | 63.67 | 58.77 | 59.82 |
| 29.0 | 60.46 | 60.82 | 59.61 | 64.10 | 145.37 | 155.30 | 154.41 | 63.96 | 58.83 | 59.24 |
| 30.0 | 60.64 | 61.05 | 59.91 | 64.45 | 145.12 | 155.07 | 154.15 | 64.31 | 59.11 | 59.32 |
| 31.0 | 60.80 | 61.25 | 60.18 | 64.71 | 143.41 | 153.27 | 152.32 | 64.58 | 59.43 | 59.54 |
| 32.0 | 60.97 | 61.46 | 60.47 | 65.04 | 142.83 | 152.67 | 151.70 | 64.90 | 59.67 | 59.62 |
| 33.0 | 61.12 | 61.66 | 60.75 | 65.43 | 143.11 | 153.00 | 152.00 | 65.27 | 59.94 | 59.78 |
| 33.5 | 61.12 | 61.68 | 60.84 | 65.55 | 149.07 | 159.19 | 158.22 | 65.40 | 60.07 | 60.06 |
| 35.0 | 60.93 | 61.30 | 60.32 | 61.16 | 64.31 | 67.45 | 66.22 | 61.03 | 59.72 | 60.46 |
| 37.0 | 60.97 | 61.41 | 60.64 | 61.50 | 64.13 | 67.07 | 65.91 | 61.37 | 60.07 | 60.60 |
| 39.0 | 60.95 | 61.43 | 60.87 | 61.79 | 64.10 | 66.85 | 65.76 | 61.64 | 60.18 | 59.94 |
| 41.0 | 60.86 | 61.40 | 61.04 | 62.04 | 64.09 | 66.66 | 65.64 | 61.90 | 60.39 | 59.92 |
| 43.0 | 60.70 | 61.29 | 61.14 | 62.24 | 64.09 | 66.48 | 65.52 | 62.09 | 60.52 | 60.00 |
| 45.0 | 60.52 | 61.15 | 61.17 | 62.36 | 64.09 | 66.34 | 65.44 | 62.27 | 61.08 | 61.04 |

Table B - 5: Temperature (°C) map of the east side of plate 6ZH-1 at MOC1 146B (18.0 EFPD).

| Length of Plate (in) | Width of Plate (inches) | | | | | | | | | |
|----------------------|-------------------------|-------|-------|-------|--------|--------|--------|-------|-------|-------|
| | 0.00 | 0.08 | 0.16 | 0.25 | 0.50 | 1.00 | 1.50 | 2.00 | 2.08 | 2.16 |
| 0.0 | 51.67 | 51.67 | 51.67 | 51.78 | 51.76 | 51.76 | 51.76 | 51.78 | 51.67 | 51.67 |
| 1.0 | 52.41 | 52.35 | 52.04 | 51.86 | 51.79 | 51.78 | 51.78 | 51.85 | 52.04 | 52.32 |
| 3.0 | 52.69 | 52.60 | 52.18 | 51.93 | 51.84 | 51.83 | 51.83 | 51.92 | 52.18 | 52.55 |
| 5.0 | 52.97 | 52.85 | 52.32 | 52.01 | 51.89 | 51.89 | 51.89 | 52.00 | 52.33 | 52.80 |
| 7.0 | 53.26 | 53.10 | 52.47 | 52.09 | 51.94 | 51.94 | 51.94 | 52.07 | 52.46 | 53.02 |
| 9.0 | 53.53 | 53.35 | 52.61 | 52.17 | 52.00 | 51.99 | 51.99 | 52.16 | 52.63 | 53.29 |
| 11.0 | 53.89 | 53.71 | 52.91 | 52.90 | 54.64 | 55.55 | 55.46 | 52.87 | 52.91 | 53.62 |
| 11.5 | 54.23 | 54.24 | 53.78 | 57.25 | 134.05 | 141.94 | 141.75 | 57.24 | 53.72 | 54.17 |
| 12.0 | 54.38 | 54.40 | 53.89 | 57.40 | 128.49 | 136.17 | 135.93 | 57.39 | 53.84 | 54.32 |
| 13.0 | 54.57 | 54.60 | 54.06 | 57.68 | 129.81 | 137.68 | 137.39 | 57.66 | 54.01 | 54.53 |
| 14.0 | 54.77 | 54.81 | 54.24 | 57.97 | 131.08 | 139.12 | 138.79 | 57.96 | 54.19 | 54.74 |
| 15.0 | 54.98 | 55.03 | 54.44 | 58.31 | 132.94 | 141.18 | 140.81 | 58.29 | 54.38 | 54.94 |
| 16.0 | 55.20 | 55.25 | 54.65 | 58.62 | 133.93 | 142.31 | 141.90 | 58.60 | 54.57 | 55.15 |
| 17.0 | 55.42 | 55.49 | 54.88 | 59.01 | 136.14 | 144.75 | 144.31 | 59.00 | 54.83 | 55.42 |
| 18.0 | 55.63 | 55.73 | 55.11 | 59.31 | 136.66 | 145.37 | 144.89 | 59.30 | 55.06 | 55.67 |
| 19.0 | 55.85 | 55.97 | 55.36 | 59.67 | 138.07 | 146.95 | 146.43 | 59.66 | 55.30 | 55.89 |
| 20.0 | 56.07 | 56.21 | 55.62 | 60.06 | 139.77 | 148.83 | 148.28 | 60.04 | 55.54 | 56.12 |
| 21.0 | 56.29 | 56.45 | 55.87 | 60.34 | 139.32 | 148.41 | 147.82 | 60.32 | 55.79 | 56.35 |
| 22.0 | 56.51 | 56.70 | 56.14 | 60.71 | 140.63 | 149.87 | 149.24 | 60.70 | 56.06 | 56.61 |
| 23.0 | 56.72 | 56.94 | 56.40 | 61.06 | 141.32 | 150.66 | 150.01 | 61.04 | 56.32 | 56.86 |
| 24.0 | 56.94 | 57.18 | 56.66 | 61.33 | 140.57 | 149.92 | 149.22 | 61.31 | 56.57 | 57.08 |
| 25.0 | 57.15 | 57.42 | 56.94 | 61.69 | 141.43 | 150.88 | 150.16 | 61.67 | 56.84 | 57.32 |
| 26.0 | 57.35 | 57.66 | 57.21 | 62.00 | 141.29 | 150.77 | 150.02 | 61.98 | 57.12 | 57.59 |
| 27.0 | 57.56 | 57.89 | 57.47 | 62.27 | 140.34 | 149.80 | 149.02 | 62.26 | 57.39 | 57.84 |
| 28.0 | 57.76 | 58.13 | 57.75 | 62.62 | 140.84 | 150.38 | 149.57 | 62.60 | 57.66 | 58.06 |
| 29.0 | 57.94 | 58.34 | 58.01 | 62.84 | 139.24 | 148.70 | 147.85 | 62.82 | 57.90 | 58.25 |
| 30.0 | 58.13 | 58.57 | 58.29 | 63.18 | 139.63 | 149.15 | 148.27 | 63.16 | 58.18 | 58.48 |
| 31.0 | 58.32 | 58.79 | 58.56 | 63.45 | 138.70 | 148.18 | 147.28 | 63.43 | 58.45 | 58.72 |
| 32.0 | 58.49 | 59.00 | 58.82 | 63.69 | 137.18 | 146.58 | 145.66 | 63.67 | 58.71 | 58.93 |
| 33.0 | 58.66 | 59.21 | 59.09 | 64.03 | 137.39 | 146.83 | 145.88 | 64.01 | 58.97 | 59.13 |
| 33.5 | 58.69 | 59.25 | 59.18 | 64.15 | 143.18 | 152.86 | 151.94 | 64.13 | 59.05 | 59.17 |
| 35.0 | 58.59 | 58.98 | 58.66 | 59.94 | 62.93 | 65.88 | 64.74 | 59.92 | 58.59 | 58.91 |
| 37.0 | 58.75 | 59.18 | 58.99 | 60.24 | 62.74 | 65.50 | 64.43 | 60.22 | 58.92 | 59.11 |
| 39.0 | 58.85 | 59.32 | 59.25 | 60.49 | 62.68 | 65.27 | 64.26 | 60.47 | 59.17 | 59.25 |
| 41.0 | 58.90 | 59.40 | 59.45 | 60.70 | 62.66 | 65.08 | 64.13 | 60.69 | 59.37 | 59.35 |
| 43.0 | 58.91 | 59.44 | 59.61 | 60.88 | 62.64 | 64.90 | 64.02 | 60.86 | 59.52 | 59.39 |
| 45.0 | 58.86 | 59.42 | 59.69 | 60.99 | 62.63 | 64.76 | 63.93 | 60.98 | 59.62 | 59.43 |

Table B - 6: Temperature (°C) map of the west side of plate 6ZH-1 at MOC1 146B (18.0 EFPD).

| Length of Plate (in) | Width of Plate (inches) | | | | | | | | | |
|----------------------|-------------------------|-------|-------|-------|--------|--------|--------|-------|-------|-------|
| | 0.00 | 0.08 | 0.16 | 0.25 | 0.50 | 1.00 | 1.50 | 2.00 | 2.08 | 2.16 |
| 0.0 | 51.67 | 51.67 | 51.67 | 51.77 | 51.76 | 51.76 | 51.76 | 51.77 | 51.67 | 51.67 |
| 1.0 | 52.50 | 52.46 | 52.11 | 51.85 | 51.79 | 51.78 | 51.78 | 51.85 | 52.07 | 52.44 |
| 3.0 | 52.80 | 52.75 | 52.27 | 51.92 | 51.84 | 51.83 | 51.83 | 51.92 | 52.20 | 52.68 |
| 5.0 | 53.11 | 53.03 | 52.43 | 52.00 | 51.89 | 51.88 | 51.88 | 52.00 | 52.36 | 52.96 |
| 7.0 | 53.41 | 53.31 | 52.59 | 52.08 | 51.94 | 51.93 | 51.93 | 52.07 | 52.49 | 53.18 |
| 9.0 | 53.71 | 53.58 | 52.75 | 52.15 | 51.99 | 51.98 | 51.98 | 52.15 | 52.68 | 53.54 |
| 11.0 | 54.11 | 54.00 | 53.08 | 52.88 | 54.64 | 55.56 | 55.47 | 52.87 | 52.97 | 53.87 |
| 11.5 | 54.50 | 54.64 | 53.96 | 57.25 | 134.07 | 141.98 | 141.77 | 57.23 | 53.88 | 54.50 |
| 12.0 | 54.67 | 54.83 | 54.11 | 57.41 | 128.54 | 136.24 | 136.00 | 57.40 | 54.02 | 54.67 |
| 13.0 | 54.89 | 55.06 | 54.32 | 57.73 | 129.95 | 137.87 | 137.56 | 57.72 | 54.25 | 54.92 |
| 14.0 | 55.11 | 55.31 | 54.57 | 58.09 | 131.33 | 139.46 | 139.09 | 58.08 | 54.49 | 55.16 |
| 15.0 | 55.34 | 55.57 | 54.84 | 58.50 | 133.31 | 141.69 | 141.26 | 58.48 | 54.74 | 55.38 |
| 16.0 | 55.57 | 55.84 | 55.12 | 58.87 | 134.43 | 143.01 | 142.52 | 58.85 | 55.01 | 55.61 |
| 17.0 | 55.81 | 56.12 | 55.44 | 59.35 | 136.78 | 145.63 | 145.09 | 59.33 | 55.37 | 56.00 |
| 18.0 | 56.05 | 56.40 | 55.75 | 59.73 | 137.44 | 146.45 | 145.85 | 59.71 | 55.70 | 56.31 |
| 19.0 | 56.29 | 56.68 | 56.08 | 60.17 | 139.00 | 148.22 | 147.56 | 60.15 | 56.02 | 56.56 |
| 20.0 | 56.54 | 56.98 | 56.44 | 60.65 | 140.84 | 150.30 | 149.58 | 60.63 | 56.34 | 56.77 |
| 21.0 | 56.78 | 57.26 | 56.78 | 61.01 | 140.55 | 150.08 | 149.31 | 60.99 | 56.67 | 57.04 |
| 22.0 | 57.02 | 57.56 | 57.14 | 61.48 | 142.00 | 151.73 | 150.90 | 61.46 | 57.05 | 57.36 |
| 23.0 | 57.26 | 57.85 | 57.51 | 61.92 | 142.84 | 152.73 | 151.84 | 61.90 | 57.42 | 57.65 |
| 24.0 | 57.49 | 58.14 | 57.88 | 62.29 | 142.25 | 152.19 | 151.25 | 62.26 | 57.77 | 57.90 |
| 25.0 | 57.72 | 58.44 | 58.26 | 62.75 | 143.26 | 153.35 | 152.35 | 62.72 | 58.16 | 58.20 |
| 26.0 | 57.95 | 58.72 | 58.64 | 63.16 | 143.27 | 153.44 | 152.40 | 63.14 | 58.57 | 58.57 |
| 27.0 | 58.18 | 59.01 | 59.02 | 63.54 | 142.49 | 152.68 | 151.59 | 63.51 | 58.97 | 58.89 |
| 28.0 | 58.40 | 59.30 | 59.41 | 63.99 | 143.14 | 153.45 | 152.31 | 63.97 | 59.34 | 59.13 |
| 29.0 | 58.61 | 59.57 | 59.79 | 64.33 | 141.70 | 151.98 | 150.79 | 64.30 | 59.69 | 59.32 |
| 30.0 | 58.82 | 59.85 | 60.18 | 64.77 | 142.25 | 152.62 | 151.39 | 64.74 | 60.08 | 59.58 |
| 31.0 | 59.02 | 60.12 | 60.57 | 65.15 | 141.48 | 151.86 | 150.58 | 65.12 | 60.49 | 59.89 |
| 32.0 | 59.22 | 60.38 | 60.95 | 65.50 | 140.13 | 150.47 | 149.15 | 65.47 | 60.87 | 60.14 |
| 33.0 | 59.41 | 60.64 | 61.35 | 65.96 | 140.48 | 150.89 | 149.54 | 65.92 | 61.25 | 60.37 |
| 33.5 | 59.43 | 60.69 | 61.48 | 66.12 | 146.28 | 156.92 | 155.60 | 66.09 | 61.39 | 60.43 |
| 35.0 | 59.29 | 60.36 | 61.10 | 62.06 | 65.87 | 69.76 | 68.23 | 62.04 | 61.00 | 60.18 |
| 37.0 | 59.46 | 60.61 | 61.55 | 62.44 | 65.71 | 69.36 | 67.92 | 62.41 | 61.46 | 60.43 |
| 39.0 | 59.57 | 60.78 | 61.91 | 62.76 | 65.65 | 69.06 | 67.71 | 62.73 | 61.80 | 60.54 |
| 41.0 | 59.62 | 60.89 | 62.19 | 63.03 | 65.61 | 68.79 | 67.53 | 63.00 | 62.10 | 60.68 |
| 43.0 | 59.63 | 60.95 | 62.41 | 63.25 | 65.58 | 68.54 | 67.36 | 63.22 | 62.32 | 60.72 |
| 45.0 | 59.57 | 60.93 | 62.53 | 63.40 | 65.55 | 68.34 | 67.23 | 63.37 | 62.51 | 60.85 |

Table B - 7: Temperature (°C) map of the east side of plate 6ZH-2 at MOC1 146B (18.0 EFPD).

| Length of Plate (in) | Width of Plate (inches) | | | | | | | | | |
|----------------------|-------------------------|-------|-------|-------|--------|--------|--------|-------|-------|-------|
| | 0.00 | 0.08 | 0.16 | 0.25 | 0.50 | 1.00 | 1.50 | 2.00 | 2.08 | 2.16 |
| 0.0 | 51.67 | 51.67 | 51.67 | 51.80 | 51.76 | 51.76 | 51.76 | 51.80 | 51.67 | 51.67 |
| 1.0 | 52.87 | 52.70 | 52.22 | 51.92 | 51.79 | 51.79 | 51.79 | 51.89 | 52.17 | 52.59 |
| 3.0 | 53.27 | 53.04 | 52.41 | 52.02 | 51.84 | 51.84 | 51.84 | 51.96 | 52.30 | 52.80 |
| 5.0 | 53.66 | 53.38 | 52.59 | 52.12 | 51.90 | 51.89 | 51.89 | 52.06 | 52.48 | 53.10 |
| 7.0 | 54.05 | 53.71 | 52.78 | 52.22 | 51.96 | 51.95 | 51.95 | 52.14 | 52.61 | 53.33 |
| 9.0 | 54.42 | 54.02 | 52.96 | 52.33 | 52.03 | 52.01 | 52.01 | 52.29 | 52.93 | 53.92 |
| 11.0 | 54.89 | 54.48 | 53.32 | 53.05 | 54.60 | 55.48 | 55.39 | 52.95 | 53.14 | 54.08 |
| 11.5 | 55.30 | 55.12 | 54.22 | 57.29 | 131.76 | 139.48 | 139.28 | 57.19 | 53.99 | 54.72 |
| 12.0 | 55.49 | 55.32 | 54.38 | 57.50 | 127.20 | 134.78 | 134.53 | 57.39 | 54.12 | 54.83 |
| 13.0 | 55.73 | 55.57 | 54.60 | 57.79 | 127.86 | 135.59 | 135.29 | 57.69 | 54.36 | 55.11 |
| 14.0 | 55.98 | 55.84 | 54.86 | 58.19 | 129.80 | 137.79 | 137.43 | 58.08 | 54.62 | 55.38 |
| 15.0 | 56.24 | 56.12 | 55.15 | 58.62 | 131.95 | 140.21 | 139.79 | 58.50 | 54.85 | 55.57 |
| 16.0 | 56.50 | 56.40 | 55.44 | 59.02 | 133.36 | 141.84 | 141.36 | 58.89 | 55.12 | 55.80 |
| 17.0 | 56.76 | 56.69 | 55.76 | 59.42 | 134.50 | 143.16 | 142.62 | 59.34 | 55.57 | 56.39 |
| 18.0 | 57.02 | 56.99 | 56.09 | 59.87 | 136.12 | 145.01 | 144.41 | 59.83 | 55.98 | 56.82 |
| 19.0 | 57.28 | 57.28 | 56.42 | 60.25 | 136.38 | 145.39 | 144.74 | 60.16 | 56.23 | 56.98 |
| 20.0 | 57.54 | 57.58 | 56.78 | 60.75 | 138.51 | 147.78 | 147.06 | 60.61 | 56.46 | 57.03 |
| 21.0 | 57.80 | 57.88 | 57.13 | 61.16 | 138.98 | 148.38 | 147.61 | 61.02 | 56.78 | 57.24 |
| 22.0 | 58.05 | 58.17 | 57.49 | 61.55 | 139.08 | 148.59 | 147.76 | 61.42 | 57.16 | 57.56 |
| 23.0 | 58.29 | 58.47 | 57.87 | 61.98 | 139.69 | 149.33 | 148.44 | 61.85 | 57.53 | 57.85 |
| 24.0 | 58.54 | 58.77 | 58.25 | 62.43 | 140.46 | 150.24 | 149.30 | 62.28 | 57.87 | 58.09 |
| 25.0 | 58.77 | 59.06 | 58.63 | 62.86 | 140.62 | 150.50 | 149.51 | 62.71 | 58.27 | 58.45 |
| 26.0 | 58.99 | 59.35 | 59.01 | 63.27 | 140.57 | 150.53 | 149.48 | 63.16 | 58.77 | 59.00 |
| 27.0 | 59.22 | 59.63 | 59.40 | 63.73 | 141.24 | 151.32 | 150.23 | 63.67 | 59.25 | 59.44 |
| 28.0 | 59.44 | 59.92 | 59.80 | 64.16 | 141.43 | 151.60 | 150.46 | 64.06 | 59.54 | 59.55 |
| 29.0 | 59.64 | 60.19 | 60.18 | 64.55 | 140.78 | 150.97 | 149.78 | 64.39 | 59.80 | 59.56 |
| 30.0 | 59.83 | 60.45 | 60.56 | 64.92 | 139.96 | 150.15 | 148.91 | 64.76 | 60.16 | 59.76 |
| 31.0 | 60.02 | 60.71 | 60.95 | 65.31 | 139.36 | 149.56 | 148.29 | 65.16 | 60.58 | 60.08 |
| 32.0 | 60.21 | 60.97 | 61.34 | 65.74 | 139.48 | 149.75 | 148.43 | 65.59 | 60.96 | 60.32 |
| 33.0 | 60.38 | 61.22 | 61.73 | 66.17 | 139.52 | 149.84 | 148.49 | 66.01 | 61.31 | 60.51 |
| 33.5 | 60.39 | 61.25 | 61.85 | 66.29 | 144.43 | 154.92 | 153.60 | 66.14 | 61.46 | 60.63 |
| 35.0 | 60.22 | 60.92 | 61.45 | 62.37 | 66.01 | 69.85 | 68.33 | 62.24 | 61.20 | 60.52 |
| 37.0 | 60.33 | 61.13 | 61.88 | 62.75 | 65.87 | 69.47 | 68.04 | 62.62 | 61.64 | 60.75 |
| 39.0 | 60.37 | 61.26 | 62.22 | 63.06 | 65.81 | 69.18 | 67.84 | 62.91 | 61.90 | 60.70 |
| 41.0 | 60.35 | 61.32 | 62.49 | 63.32 | 65.78 | 68.92 | 67.67 | 63.19 | 62.19 | 60.81 |
| 43.0 | 60.28 | 61.33 | 62.69 | 63.53 | 65.76 | 68.67 | 67.50 | 63.39 | 62.38 | 60.84 |
| 45.0 | 60.16 | 61.27 | 62.80 | 63.66 | 65.74 | 68.48 | 67.38 | 63.61 | 62.70 | 61.19 |

Table B - 8: Temperature (°C) map of the west side of plate 6ZH-2 at MOC1 146B (18.0 EFPD).

| Length of Plate (in) | Width of Plate (inches) | | | | | | | | | |
|----------------------|-------------------------|-------|-------|-------|--------|--------|--------|-------|-------|-------|
| | 0.00 | 0.08 | 0.16 | 0.25 | 0.50 | 1.00 | 1.50 | 2.00 | 2.08 | 2.16 |
| 0.0 | 51.67 | 51.67 | 51.67 | 51.79 | 51.76 | 51.76 | 51.76 | 51.79 | 51.67 | 51.67 |
| 1.0 | 53.24 | 53.13 | 52.44 | 51.90 | 51.79 | 51.79 | 51.79 | 51.88 | 52.25 | 52.94 |
| 3.0 | 53.73 | 53.58 | 52.69 | 52.00 | 51.85 | 51.85 | 51.85 | 51.96 | 52.37 | 53.00 |
| 5.0 | 54.20 | 54.00 | 52.94 | 52.10 | 51.92 | 51.91 | 51.91 | 52.07 | 52.55 | 53.28 |
| 7.0 | 54.66 | 54.42 | 53.18 | 52.21 | 51.99 | 51.98 | 51.98 | 52.16 | 52.73 | 53.62 |
| 9.0 | 55.10 | 54.81 | 53.42 | 52.32 | 52.07 | 52.05 | 52.06 | 52.30 | 53.26 | 54.92 |
| 11.0 | 55.62 | 55.32 | 53.80 | 53.06 | 54.65 | 55.52 | 55.44 | 52.99 | 53.25 | 54.43 |
| 11.5 | 55.99 | 55.90 | 54.62 | 57.30 | 131.80 | 139.50 | 139.30 | 57.23 | 54.09 | 54.94 |
| 12.0 | 56.18 | 56.10 | 54.77 | 57.49 | 127.21 | 134.76 | 134.52 | 57.42 | 54.20 | 54.93 |
| 13.0 | 56.44 | 56.36 | 54.97 | 57.74 | 127.79 | 135.46 | 135.18 | 57.67 | 54.39 | 55.17 |
| 14.0 | 56.70 | 56.62 | 55.18 | 58.09 | 129.62 | 137.51 | 137.19 | 58.01 | 54.62 | 55.46 |
| 15.0 | 56.98 | 56.90 | 55.42 | 58.45 | 131.66 | 139.76 | 139.40 | 58.36 | 54.79 | 55.66 |
| 16.0 | 57.24 | 57.18 | 55.67 | 58.79 | 132.95 | 141.21 | 140.81 | 58.69 | 55.02 | 55.92 |
| 17.0 | 57.51 | 57.46 | 55.92 | 59.12 | 133.95 | 142.34 | 141.91 | 59.06 | 55.47 | 56.92 |
| 18.0 | 57.77 | 57.74 | 56.18 | 59.50 | 135.43 | 144.00 | 143.53 | 59.45 | 55.99 | 57.69 |
| 19.0 | 58.02 | 58.00 | 56.44 | 59.80 | 135.55 | 144.19 | 143.68 | 59.73 | 55.98 | 57.48 |
| 20.0 | 58.28 | 58.29 | 56.73 | 60.22 | 137.54 | 146.38 | 145.84 | 60.11 | 56.02 | 56.97 |
| 21.0 | 58.54 | 58.56 | 57.00 | 60.55 | 137.87 | 146.79 | 146.21 | 60.43 | 56.26 | 57.04 |
| 22.0 | 58.76 | 58.81 | 57.27 | 60.86 | 137.83 | 146.79 | 146.18 | 60.75 | 56.52 | 57.20 |
| 23.0 | 58.99 | 59.07 | 57.54 | 61.20 | 138.29 | 147.33 | 146.69 | 61.09 | 56.79 | 57.43 |
| 24.0 | 59.23 | 59.33 | 57.83 | 61.56 | 138.91 | 148.05 | 147.37 | 61.44 | 57.06 | 57.71 |
| 25.0 | 59.43 | 59.56 | 58.10 | 61.89 | 138.92 | 148.11 | 147.40 | 61.77 | 57.34 | 58.11 |
| 26.0 | 59.63 | 59.79 | 58.37 | 62.21 | 138.72 | 147.94 | 147.20 | 62.12 | 57.85 | 59.15 |
| 27.0 | 59.83 | 60.03 | 58.65 | 62.57 | 139.24 | 148.54 | 147.77 | 62.50 | 58.45 | 59.95 |
| 28.0 | 60.01 | 60.25 | 58.93 | 62.91 | 139.29 | 148.62 | 147.82 | 62.82 | 58.39 | 59.52 |
| 29.0 | 60.18 | 60.46 | 59.19 | 63.20 | 138.48 | 147.79 | 146.96 | 63.06 | 58.42 | 58.94 |
| 30.0 | 60.34 | 60.65 | 59.44 | 63.47 | 137.50 | 146.77 | 145.91 | 63.33 | 58.67 | 59.00 |
| 31.0 | 60.49 | 60.84 | 59.70 | 63.76 | 136.75 | 145.99 | 145.11 | 63.63 | 58.97 | 59.20 |
| 32.0 | 60.64 | 61.03 | 59.96 | 64.09 | 136.73 | 145.99 | 145.08 | 63.95 | 59.19 | 59.27 |
| 33.0 | 60.76 | 61.20 | 60.22 | 64.42 | 136.63 | 145.91 | 144.98 | 64.27 | 59.43 | 59.41 |
| 33.5 | 60.76 | 61.21 | 60.29 | 64.50 | 141.52 | 150.98 | 150.07 | 64.35 | 59.54 | 59.66 |
| 35.0 | 60.57 | 60.84 | 59.80 | 60.43 | 63.26 | 66.11 | 65.00 | 60.31 | 59.22 | 60.06 |
| 37.0 | 60.58 | 60.91 | 60.08 | 60.74 | 63.11 | 65.76 | 64.72 | 60.62 | 59.53 | 60.17 |
| 39.0 | 60.53 | 60.91 | 60.28 | 61.01 | 63.07 | 65.56 | 64.57 | 60.87 | 59.61 | 59.51 |
| 41.0 | 60.42 | 60.85 | 60.41 | 61.23 | 63.07 | 65.39 | 64.47 | 61.10 | 59.80 | 59.47 |
| 43.0 | 60.25 | 60.73 | 60.49 | 61.41 | 63.07 | 65.23 | 64.36 | 61.26 | 59.90 | 59.53 |
| 45.0 | 60.05 | 60.57 | 60.51 | 61.52 | 63.06 | 65.11 | 64.28 | 61.43 | 60.41 | 60.46 |

Table B - 9: Temperature (°C) map of the east side of plate 6ZH-1 at MOC2 146B (28.0 EFPD).

| Length of Plate (in) | Width of Plate (inches) | | | | | | | | | |
|----------------------|-------------------------|-------|-------|-------|--------|--------|--------|-------|-------|-------|
| | 0.00 | 0.08 | 0.16 | 0.25 | 0.50 | 1.00 | 1.50 | 2.00 | 2.08 | 2.16 |
| 0.0 | 51.67 | 51.67 | 51.67 | 51.78 | 51.76 | 51.76 | 51.76 | 51.78 | 51.67 | 51.67 |
| 1.0 | 52.41 | 52.35 | 52.04 | 51.86 | 51.79 | 51.78 | 51.78 | 51.85 | 52.04 | 52.32 |
| 3.0 | 52.69 | 52.60 | 52.18 | 51.93 | 51.84 | 51.83 | 51.83 | 51.92 | 52.18 | 52.55 |
| 5.0 | 52.97 | 52.85 | 52.32 | 52.01 | 51.89 | 51.89 | 51.89 | 52.00 | 52.33 | 52.80 |
| 7.0 | 53.26 | 53.10 | 52.47 | 52.09 | 51.94 | 51.94 | 51.94 | 52.07 | 52.46 | 53.02 |
| 9.0 | 53.53 | 53.35 | 52.61 | 52.17 | 52.00 | 51.99 | 51.99 | 52.16 | 52.63 | 53.29 |
| 11.0 | 53.90 | 53.72 | 52.92 | 52.94 | 54.80 | 55.78 | 55.68 | 52.92 | 52.92 | 53.62 |
| 11.5 | 54.25 | 54.28 | 53.84 | 57.56 | 138.72 | 146.99 | 146.78 | 57.55 | 53.78 | 54.21 |
| 12.0 | 54.41 | 54.45 | 53.97 | 57.77 | 133.87 | 141.99 | 141.74 | 57.75 | 53.92 | 54.37 |
| 13.0 | 54.60 | 54.65 | 54.13 | 58.01 | 134.35 | 142.60 | 142.30 | 58.00 | 54.08 | 54.58 |
| 14.0 | 54.82 | 54.87 | 54.33 | 58.36 | 136.27 | 144.73 | 144.39 | 58.35 | 54.28 | 54.80 |
| 15.0 | 55.03 | 55.10 | 54.53 | 58.67 | 137.32 | 145.93 | 145.54 | 58.66 | 54.46 | 55.01 |
| 16.0 | 55.25 | 55.34 | 54.76 | 59.05 | 139.39 | 148.21 | 147.79 | 59.03 | 54.68 | 55.23 |
| 17.0 | 55.47 | 55.58 | 55.00 | 59.41 | 140.72 | 149.72 | 149.25 | 59.39 | 54.94 | 55.51 |
| 18.0 | 55.70 | 55.82 | 55.23 | 59.71 | 141.00 | 150.08 | 149.58 | 59.70 | 55.18 | 55.76 |
| 19.0 | 55.92 | 56.07 | 55.49 | 60.05 | 141.76 | 150.96 | 150.42 | 60.03 | 55.42 | 56.00 |
| 20.0 | 56.15 | 56.32 | 55.76 | 60.44 | 143.28 | 152.65 | 152.07 | 60.42 | 55.68 | 56.23 |
| 21.0 | 56.38 | 56.57 | 56.02 | 60.76 | 143.35 | 152.79 | 152.17 | 60.74 | 55.94 | 56.47 |
| 22.0 | 56.60 | 56.83 | 56.30 | 61.11 | 143.91 | 153.45 | 152.79 | 61.09 | 56.22 | 56.74 |
| 23.0 | 56.83 | 57.08 | 56.58 | 61.46 | 144.36 | 153.99 | 153.30 | 61.44 | 56.49 | 57.00 |
| 24.0 | 57.05 | 57.33 | 56.86 | 61.83 | 145.21 | 154.95 | 154.23 | 61.81 | 56.76 | 57.24 |
| 25.0 | 57.27 | 57.58 | 57.14 | 62.12 | 144.54 | 154.28 | 153.53 | 62.10 | 57.04 | 57.49 |
| 26.0 | 57.49 | 57.84 | 57.43 | 62.49 | 145.16 | 155.00 | 154.21 | 62.48 | 57.34 | 57.77 |
| 27.0 | 57.70 | 58.09 | 57.72 | 62.82 | 145.00 | 154.87 | 154.04 | 62.81 | 57.63 | 58.03 |
| 28.0 | 57.91 | 58.34 | 58.01 | 63.18 | 145.23 | 155.16 | 154.30 | 63.17 | 57.92 | 58.27 |
| 29.0 | 58.12 | 58.57 | 58.30 | 63.48 | 144.56 | 154.48 | 153.60 | 63.46 | 58.18 | 58.48 |
| 30.0 | 58.31 | 58.81 | 58.58 | 63.76 | 143.43 | 153.31 | 152.39 | 63.73 | 58.46 | 58.72 |
| 31.0 | 58.51 | 59.04 | 58.87 | 64.08 | 143.23 | 153.11 | 152.18 | 64.06 | 58.76 | 58.97 |
| 32.0 | 58.70 | 59.28 | 59.16 | 64.41 | 143.06 | 152.96 | 151.99 | 64.40 | 59.04 | 59.21 |
| 33.0 | 58.88 | 59.50 | 59.45 | 64.76 | 142.85 | 152.77 | 151.78 | 64.74 | 59.32 | 59.42 |
| 33.5 | 58.91 | 59.53 | 59.53 | 64.78 | 147.17 | 157.21 | 156.25 | 64.76 | 59.39 | 59.46 |
| 35.0 | 58.81 | 59.26 | 58.99 | 60.41 | 63.60 | 66.73 | 65.53 | 60.39 | 58.91 | 59.19 |
| 37.0 | 58.98 | 59.48 | 59.35 | 60.72 | 63.40 | 66.33 | 65.20 | 60.70 | 59.27 | 59.42 |
| 39.0 | 59.10 | 59.63 | 59.63 | 60.99 | 63.34 | 66.09 | 65.02 | 60.97 | 59.54 | 59.56 |
| 41.0 | 59.16 | 59.74 | 59.85 | 61.22 | 63.31 | 65.89 | 64.88 | 61.20 | 59.76 | 59.69 |
| 43.0 | 59.18 | 59.79 | 60.02 | 61.41 | 63.30 | 65.70 | 64.76 | 61.39 | 59.92 | 59.74 |
| 45.0 | 59.14 | 59.78 | 60.11 | 61.52 | 63.28 | 65.55 | 64.66 | 61.52 | 60.04 | 59.79 |

Table B - 10: Temperature (°C) map of the west side of plate 6ZH-1 at MOC2 146B (28.0 EFPD).

| Length of Plate (in) | Width of Plate (inches) | | | | | | | | | |
|----------------------|-------------------------|-------|-------|-------|--------|--------|--------|-------|-------|-------|
| | 0.00 | 0.08 | 0.16 | 0.25 | 0.50 | 1.00 | 1.50 | 2.00 | 2.08 | 2.16 |
| 0.0 | 51.67 | 51.67 | 51.67 | 51.77 | 51.76 | 51.76 | 51.76 | 51.77 | 51.67 | 51.67 |
| 1.0 | 52.50 | 52.46 | 52.11 | 51.85 | 51.79 | 51.78 | 51.78 | 51.85 | 52.07 | 52.44 |
| 3.0 | 52.80 | 52.75 | 52.27 | 51.92 | 51.84 | 51.83 | 51.83 | 51.92 | 52.20 | 52.68 |
| 5.0 | 53.11 | 53.03 | 52.43 | 52.00 | 51.89 | 51.88 | 51.88 | 52.00 | 52.36 | 52.96 |
| 7.0 | 53.41 | 53.31 | 52.59 | 52.08 | 51.94 | 51.93 | 51.93 | 52.07 | 52.49 | 53.18 |
| 9.0 | 53.71 | 53.58 | 52.75 | 52.15 | 51.99 | 51.98 | 51.98 | 52.15 | 52.68 | 53.54 |
| 11.0 | 54.12 | 54.01 | 53.10 | 52.92 | 54.81 | 55.78 | 55.69 | 52.91 | 52.98 | 53.88 |
| 11.5 | 54.54 | 54.69 | 54.03 | 57.56 | 138.75 | 147.03 | 146.82 | 57.55 | 53.95 | 54.55 |
| 12.0 | 54.71 | 54.89 | 54.19 | 57.78 | 133.93 | 142.07 | 141.82 | 57.77 | 54.11 | 54.73 |
| 13.0 | 54.93 | 55.13 | 54.41 | 58.08 | 134.50 | 142.80 | 142.48 | 58.06 | 54.34 | 54.98 |
| 14.0 | 55.16 | 55.39 | 54.67 | 58.49 | 136.53 | 145.10 | 144.71 | 58.48 | 54.60 | 55.24 |
| 15.0 | 55.40 | 55.66 | 54.95 | 58.88 | 137.72 | 146.48 | 146.03 | 58.86 | 54.85 | 55.46 |
| 16.0 | 55.64 | 55.94 | 55.26 | 59.33 | 139.92 | 148.96 | 148.45 | 59.31 | 55.15 | 55.71 |
| 17.0 | 55.88 | 56.23 | 55.58 | 59.77 | 141.41 | 150.66 | 150.09 | 59.75 | 55.52 | 56.10 |
| 18.0 | 56.13 | 56.52 | 55.91 | 60.16 | 141.84 | 151.24 | 150.60 | 60.14 | 55.86 | 56.43 |
| 19.0 | 56.38 | 56.81 | 56.26 | 60.59 | 142.76 | 152.32 | 151.63 | 60.57 | 56.19 | 56.69 |
| 20.0 | 56.63 | 57.12 | 56.62 | 61.07 | 144.43 | 154.22 | 153.46 | 61.05 | 56.53 | 56.91 |
| 21.0 | 56.88 | 57.42 | 56.99 | 61.49 | 144.66 | 154.57 | 153.76 | 61.46 | 56.88 | 57.19 |
| 22.0 | 57.13 | 57.73 | 57.37 | 61.94 | 145.37 | 155.44 | 154.57 | 61.91 | 57.28 | 57.52 |
| 23.0 | 57.38 | 58.03 | 57.76 | 62.39 | 145.99 | 156.19 | 155.26 | 62.36 | 57.67 | 57.82 |
| 24.0 | 57.63 | 58.34 | 58.15 | 62.86 | 147.00 | 157.36 | 156.38 | 62.84 | 58.05 | 58.09 |
| 25.0 | 57.87 | 58.65 | 58.54 | 63.26 | 146.49 | 156.91 | 155.87 | 63.24 | 58.44 | 58.41 |
| 26.0 | 58.11 | 58.96 | 58.96 | 63.74 | 147.27 | 157.83 | 156.74 | 63.72 | 58.89 | 58.80 |
| 27.0 | 58.35 | 59.26 | 59.37 | 64.19 | 147.27 | 157.91 | 156.77 | 64.17 | 59.32 | 59.14 |
| 28.0 | 58.58 | 59.57 | 59.78 | 64.66 | 147.67 | 158.41 | 157.21 | 64.63 | 59.72 | 59.40 |
| 29.0 | 58.81 | 59.86 | 60.19 | 65.08 | 147.17 | 157.95 | 156.70 | 65.05 | 60.10 | 59.61 |
| 30.0 | 59.03 | 60.15 | 60.60 | 65.47 | 146.21 | 156.99 | 155.70 | 65.43 | 60.50 | 59.88 |
| 31.0 | 59.25 | 60.44 | 61.02 | 65.91 | 146.17 | 157.01 | 155.67 | 65.88 | 60.94 | 60.21 |
| 32.0 | 59.46 | 60.73 | 61.44 | 66.36 | 146.16 | 157.06 | 155.68 | 66.33 | 61.36 | 60.49 |
| 33.0 | 59.66 | 61.02 | 61.86 | 66.82 | 146.12 | 157.06 | 155.64 | 66.79 | 61.76 | 60.73 |
| 33.5 | 59.69 | 61.06 | 61.98 | 66.90 | 150.46 | 161.52 | 160.13 | 66.87 | 61.90 | 60.79 |
| 35.0 | 59.54 | 60.72 | 61.60 | 62.69 | 66.77 | 70.91 | 69.28 | 62.66 | 61.51 | 60.54 |
| 37.0 | 59.73 | 61.00 | 62.09 | 63.09 | 66.60 | 70.49 | 68.95 | 63.06 | 62.00 | 60.81 |
| 39.0 | 59.86 | 61.19 | 62.47 | 63.44 | 66.53 | 70.17 | 68.73 | 63.40 | 62.37 | 60.94 |
| 41.0 | 59.93 | 61.32 | 62.78 | 63.72 | 66.49 | 69.88 | 68.54 | 63.69 | 62.69 | 61.10 |
| 43.0 | 59.95 | 61.39 | 63.02 | 63.96 | 66.46 | 69.61 | 68.36 | 63.93 | 62.93 | 61.16 |
| 45.0 | 59.90 | 61.38 | 63.16 | 64.12 | 66.43 | 69.41 | 68.22 | 64.09 | 63.14 | 61.30 |

Table B - 11: Temperature (°C) map of the east side of plate 6ZH-2 at MOC2 146B (28.0 EFPD).

| Length of Plate (in) | Width of Plate (inches) | | | | | | | | | |
|----------------------|-------------------------|-------|-------|-------|--------|--------|--------|-------|-------|-------|
| | 0.00 | 0.08 | 0.16 | 0.25 | 0.50 | 1.00 | 1.50 | 2.00 | 2.08 | 2.16 |
| 0.0 | 51.67 | 51.67 | 51.67 | 51.80 | 51.76 | 51.76 | 51.76 | 51.80 | 51.67 | 51.67 |
| 1.0 | 52.87 | 52.70 | 52.22 | 51.92 | 51.79 | 51.79 | 51.79 | 51.89 | 52.17 | 52.59 |
| 3.0 | 53.27 | 53.04 | 52.41 | 52.02 | 51.84 | 51.84 | 51.84 | 51.96 | 52.30 | 52.80 |
| 5.0 | 53.66 | 53.38 | 52.59 | 52.12 | 51.90 | 51.89 | 51.89 | 52.06 | 52.48 | 53.10 |
| 7.0 | 54.05 | 53.71 | 52.78 | 52.22 | 51.96 | 51.95 | 51.95 | 52.14 | 52.61 | 53.33 |
| 9.0 | 54.42 | 54.02 | 52.96 | 52.33 | 52.03 | 52.01 | 52.01 | 52.29 | 52.93 | 53.92 |
| 11.0 | 54.90 | 54.49 | 53.33 | 53.11 | 54.83 | 55.79 | 55.69 | 53.00 | 53.15 | 54.10 |
| 11.5 | 55.33 | 55.18 | 54.30 | 57.69 | 138.08 | 146.30 | 146.09 | 57.60 | 54.07 | 54.77 |
| 12.0 | 55.52 | 55.38 | 54.46 | 57.85 | 132.02 | 140.01 | 139.76 | 57.74 | 54.20 | 54.89 |
| 13.0 | 55.77 | 55.64 | 54.69 | 58.17 | 133.01 | 141.18 | 140.86 | 58.07 | 54.45 | 55.18 |
| 14.0 | 56.03 | 55.92 | 54.97 | 58.60 | 135.06 | 143.50 | 143.11 | 58.49 | 54.72 | 55.45 |
| 15.0 | 56.30 | 56.21 | 55.27 | 59.02 | 136.79 | 145.47 | 145.02 | 58.90 | 54.97 | 55.66 |
| 16.0 | 56.57 | 56.50 | 55.58 | 59.47 | 138.58 | 147.50 | 146.99 | 59.34 | 55.26 | 55.90 |
| 17.0 | 56.84 | 56.81 | 55.91 | 59.91 | 140.12 | 149.27 | 148.70 | 59.83 | 55.72 | 56.50 |
| 18.0 | 57.11 | 57.11 | 56.26 | 60.35 | 141.28 | 150.61 | 149.98 | 60.31 | 56.14 | 56.94 |
| 19.0 | 57.37 | 57.42 | 56.61 | 60.76 | 141.72 | 151.19 | 150.50 | 60.68 | 56.41 | 57.11 |
| 20.0 | 57.64 | 57.73 | 56.98 | 61.24 | 143.18 | 152.87 | 152.12 | 61.10 | 56.66 | 57.17 |
| 21.0 | 57.91 | 58.04 | 57.35 | 61.65 | 143.33 | 153.13 | 152.32 | 61.51 | 56.99 | 57.39 |
| 22.0 | 58.17 | 58.35 | 57.74 | 62.10 | 143.96 | 153.90 | 153.03 | 61.97 | 57.40 | 57.73 |
| 23.0 | 58.42 | 58.66 | 58.12 | 62.50 | 143.67 | 153.69 | 152.76 | 62.37 | 57.77 | 58.02 |
| 24.0 | 58.67 | 58.97 | 58.52 | 62.95 | 144.02 | 154.15 | 153.17 | 62.80 | 58.14 | 58.28 |
| 25.0 | 58.92 | 59.28 | 58.93 | 63.42 | 144.72 | 155.00 | 153.96 | 63.27 | 58.56 | 58.66 |
| 26.0 | 59.16 | 59.58 | 59.34 | 63.90 | 145.32 | 155.72 | 154.62 | 63.79 | 59.09 | 59.23 |
| 27.0 | 59.40 | 59.89 | 59.75 | 64.36 | 145.49 | 155.98 | 154.84 | 64.30 | 59.60 | 59.70 |
| 28.0 | 59.63 | 60.19 | 60.17 | 64.82 | 145.72 | 156.31 | 155.11 | 64.71 | 59.91 | 59.81 |
| 29.0 | 59.84 | 60.48 | 60.58 | 65.25 | 145.46 | 156.09 | 154.85 | 65.09 | 60.19 | 59.84 |
| 30.0 | 60.05 | 60.76 | 60.99 | 65.67 | 144.87 | 155.53 | 154.24 | 65.50 | 60.58 | 60.06 |
| 31.0 | 60.26 | 61.05 | 61.41 | 66.11 | 144.85 | 155.57 | 154.23 | 65.96 | 61.03 | 60.41 |
| 32.0 | 60.46 | 61.32 | 61.83 | 66.54 | 144.36 | 155.10 | 153.72 | 66.39 | 61.43 | 60.66 |
| 33.0 | 60.64 | 61.60 | 62.25 | 67.03 | 144.85 | 155.68 | 154.27 | 66.87 | 61.81 | 60.86 |
| 33.5 | 60.66 | 61.63 | 62.39 | 67.19 | 150.54 | 161.58 | 160.19 | 67.03 | 61.98 | 61.00 |
| 35.0 | 60.48 | 61.29 | 61.96 | 63.00 | 66.91 | 71.02 | 69.40 | 62.87 | 61.70 | 60.88 |
| 37.0 | 60.61 | 61.52 | 62.43 | 63.40 | 66.76 | 70.61 | 69.08 | 63.27 | 62.17 | 61.13 |
| 39.0 | 60.67 | 61.68 | 62.80 | 63.74 | 66.70 | 70.31 | 68.87 | 63.59 | 62.46 | 61.09 |
| 41.0 | 60.67 | 61.76 | 63.09 | 64.02 | 66.67 | 70.03 | 68.69 | 63.88 | 62.78 | 61.23 |
| 43.0 | 60.61 | 61.78 | 63.31 | 64.25 | 66.64 | 69.76 | 68.51 | 64.10 | 62.99 | 61.27 |
| 45.0 | 60.50 | 61.73 | 63.44 | 64.39 | 66.62 | 69.56 | 68.38 | 64.34 | 63.33 | 61.65 |

Table B - 12: Temperature (°C) map of the west side of plate 6ZH-2 at MOC2 146B (28.0 EFPD).

| Length of Plate (in) | Width of Plate (inches) | | | | | | | | | |
|----------------------|-------------------------|-------|-------|-------|--------|--------|--------|-------|-------|-------|
| | 0.00 | 0.08 | 0.16 | 0.25 | 0.50 | 1.00 | 1.50 | 2.00 | 2.08 | 2.16 |
| 0.0 | 51.67 | 51.67 | 51.67 | 51.79 | 51.76 | 51.76 | 51.76 | 51.79 | 51.67 | 51.67 |
| 1.0 | 53.24 | 53.13 | 52.44 | 51.90 | 51.79 | 51.79 | 51.79 | 51.88 | 52.25 | 52.94 |
| 3.0 | 53.73 | 53.58 | 52.69 | 52.00 | 51.85 | 51.85 | 51.85 | 51.96 | 52.37 | 53.00 |
| 5.0 | 54.20 | 54.00 | 52.94 | 52.10 | 51.92 | 51.91 | 51.91 | 52.07 | 52.55 | 53.28 |
| 7.0 | 54.66 | 54.42 | 53.18 | 52.21 | 51.99 | 51.98 | 51.98 | 52.16 | 52.73 | 53.62 |
| 9.0 | 55.10 | 54.81 | 53.42 | 52.32 | 52.07 | 52.05 | 52.06 | 52.30 | 53.26 | 54.92 |
| 11.0 | 55.62 | 55.33 | 53.82 | 53.11 | 54.87 | 55.82 | 55.73 | 53.05 | 53.27 | 54.44 |
| 11.5 | 56.02 | 55.95 | 54.70 | 57.70 | 138.11 | 146.31 | 146.11 | 57.63 | 54.17 | 54.98 |
| 12.0 | 56.21 | 56.15 | 54.84 | 57.84 | 132.03 | 139.99 | 139.75 | 57.76 | 54.27 | 54.97 |
| 13.0 | 56.48 | 56.42 | 55.05 | 58.11 | 132.93 | 141.03 | 140.74 | 58.04 | 54.47 | 55.22 |
| 14.0 | 56.75 | 56.69 | 55.27 | 58.48 | 134.87 | 143.19 | 142.85 | 58.41 | 54.71 | 55.52 |
| 15.0 | 57.03 | 56.98 | 55.52 | 58.85 | 136.47 | 144.98 | 144.61 | 58.75 | 54.89 | 55.73 |
| 16.0 | 57.30 | 57.27 | 55.77 | 59.22 | 138.13 | 146.82 | 146.41 | 59.11 | 55.13 | 55.99 |
| 17.0 | 57.58 | 57.56 | 56.04 | 59.59 | 139.53 | 148.39 | 147.94 | 59.52 | 55.59 | 57.01 |
| 18.0 | 57.85 | 57.85 | 56.31 | 59.95 | 140.54 | 149.54 | 149.04 | 59.90 | 56.12 | 57.79 |
| 19.0 | 58.11 | 58.12 | 56.59 | 60.28 | 140.83 | 149.91 | 149.38 | 60.21 | 56.13 | 57.59 |
| 20.0 | 58.37 | 58.41 | 56.88 | 60.67 | 142.15 | 151.39 | 150.82 | 60.56 | 56.16 | 57.08 |
| 21.0 | 58.64 | 58.70 | 57.16 | 60.99 | 142.15 | 151.44 | 150.83 | 60.88 | 56.42 | 57.15 |
| 22.0 | 58.87 | 58.96 | 57.45 | 61.35 | 142.62 | 152.00 | 151.36 | 61.25 | 56.70 | 57.33 |
| 23.0 | 59.11 | 59.23 | 57.73 | 61.66 | 142.18 | 151.58 | 150.90 | 61.55 | 56.97 | 57.56 |
| 24.0 | 59.35 | 59.50 | 58.02 | 62.01 | 142.37 | 151.83 | 151.12 | 61.88 | 57.25 | 57.85 |
| 25.0 | 59.57 | 59.75 | 58.32 | 62.39 | 142.92 | 152.47 | 151.73 | 62.26 | 57.55 | 58.26 |
| 26.0 | 59.78 | 60.00 | 58.61 | 62.76 | 143.36 | 152.98 | 152.21 | 62.67 | 58.09 | 59.33 |
| 27.0 | 59.99 | 60.25 | 58.90 | 63.12 | 143.37 | 153.04 | 152.23 | 63.04 | 58.71 | 60.16 |
| 28.0 | 60.18 | 60.48 | 59.19 | 63.47 | 143.45 | 153.16 | 152.33 | 63.37 | 58.65 | 59.72 |
| 29.0 | 60.37 | 60.70 | 59.48 | 63.80 | 143.02 | 152.74 | 151.87 | 63.66 | 58.70 | 59.14 |
| 30.0 | 60.54 | 60.91 | 59.75 | 64.11 | 142.27 | 151.97 | 151.07 | 63.96 | 58.97 | 59.21 |
| 31.0 | 60.70 | 61.12 | 60.03 | 64.45 | 142.09 | 151.80 | 150.88 | 64.31 | 59.29 | 59.43 |
| 32.0 | 60.86 | 61.32 | 60.31 | 64.76 | 141.44 | 151.13 | 150.18 | 64.63 | 59.52 | 59.51 |
| 33.0 | 61.00 | 61.51 | 60.59 | 65.15 | 141.79 | 151.53 | 150.56 | 65.00 | 59.79 | 59.66 |
| 33.5 | 61.00 | 61.53 | 60.66 | 65.26 | 147.46 | 157.43 | 156.49 | 65.11 | 59.90 | 59.93 |
| 35.0 | 60.81 | 61.15 | 60.15 | 60.92 | 63.96 | 67.00 | 65.81 | 60.79 | 59.56 | 60.33 |
| 37.0 | 60.84 | 61.24 | 60.46 | 61.25 | 63.79 | 66.63 | 65.51 | 61.12 | 59.89 | 60.46 |
| 39.0 | 60.81 | 61.26 | 60.68 | 61.53 | 63.75 | 66.41 | 65.36 | 61.38 | 59.99 | 59.79 |
| 41.0 | 60.71 | 61.22 | 60.83 | 61.77 | 63.75 | 66.23 | 65.24 | 61.63 | 60.20 | 59.77 |
| 43.0 | 60.55 | 61.11 | 60.92 | 61.96 | 63.75 | 66.06 | 65.13 | 61.81 | 60.31 | 59.85 |
| 45.0 | 60.36 | 60.95 | 60.95 | 62.08 | 63.75 | 65.93 | 65.05 | 61.99 | 60.86 | 60.84 |

Table B - 13: Temperature (°C) map of the east side of plate 6ZH-1 at EOC 146B (39.2 EFPD).

| Length of Plate (in) | Width of Plate (inches) | | | | | | | | | |
|----------------------|-------------------------|-------|-------|-------|--------|--------|--------|-------|-------|-------|
| | 0.00 | 0.08 | 0.16 | 0.25 | 0.50 | 1.00 | 1.50 | 2.00 | 2.08 | 2.16 |
| 0.0 | 51.67 | 51.67 | 51.67 | 51.78 | 51.76 | 51.76 | 51.76 | 51.78 | 51.67 | 51.67 |
| 1.0 | 52.41 | 52.35 | 52.04 | 51.86 | 51.79 | 51.78 | 51.78 | 51.85 | 52.04 | 52.32 |
| 3.0 | 52.69 | 52.60 | 52.18 | 51.93 | 51.84 | 51.83 | 51.83 | 51.92 | 52.18 | 52.55 |
| 5.0 | 52.97 | 52.85 | 52.32 | 52.01 | 51.89 | 51.89 | 51.89 | 52.00 | 52.33 | 52.80 |
| 7.0 | 53.26 | 53.10 | 52.47 | 52.09 | 51.94 | 51.94 | 51.94 | 52.07 | 52.46 | 53.02 |
| 9.0 | 53.53 | 53.35 | 52.61 | 52.17 | 52.00 | 51.99 | 51.99 | 52.16 | 52.63 | 53.29 |
| 11.0 | 53.90 | 53.71 | 52.92 | 52.91 | 54.69 | 55.63 | 55.53 | 52.89 | 52.91 | 53.62 |
| 11.5 | 54.24 | 54.26 | 53.80 | 57.36 | 135.58 | 143.60 | 143.40 | 57.34 | 53.75 | 54.18 |
| 12.0 | 54.39 | 54.43 | 53.93 | 57.59 | 131.40 | 139.33 | 139.08 | 57.57 | 53.88 | 54.35 |
| 13.0 | 54.59 | 54.62 | 54.09 | 57.83 | 131.92 | 139.96 | 139.67 | 57.82 | 54.04 | 54.55 |
| 14.0 | 54.79 | 54.84 | 54.28 | 58.17 | 133.76 | 142.01 | 141.67 | 58.16 | 54.23 | 54.77 |
| 15.0 | 55.00 | 55.06 | 54.48 | 58.46 | 134.55 | 142.93 | 142.56 | 58.44 | 54.41 | 54.97 |
| 16.0 | 55.22 | 55.29 | 54.70 | 58.83 | 136.60 | 145.20 | 144.78 | 58.80 | 54.63 | 55.18 |
| 17.0 | 55.44 | 55.53 | 54.93 | 59.17 | 137.88 | 146.64 | 146.19 | 59.15 | 54.87 | 55.46 |
| 18.0 | 55.66 | 55.76 | 55.16 | 59.45 | 138.00 | 146.82 | 146.34 | 59.44 | 55.11 | 55.70 |
| 19.0 | 55.88 | 56.00 | 55.41 | 59.78 | 138.87 | 147.83 | 147.30 | 59.77 | 55.34 | 55.93 |
| 20.0 | 56.10 | 56.25 | 55.67 | 60.17 | 140.35 | 149.47 | 148.91 | 60.15 | 55.59 | 56.16 |
| 21.0 | 56.32 | 56.49 | 55.92 | 60.46 | 140.24 | 149.41 | 148.82 | 60.44 | 55.84 | 56.39 |
| 22.0 | 56.54 | 56.74 | 56.19 | 60.80 | 140.80 | 150.07 | 149.44 | 60.78 | 56.11 | 56.66 |
| 23.0 | 56.76 | 56.99 | 56.46 | 61.13 | 141.16 | 150.51 | 149.84 | 61.11 | 56.37 | 56.90 |
| 24.0 | 56.98 | 57.23 | 56.73 | 61.49 | 141.92 | 151.37 | 150.67 | 61.47 | 56.64 | 57.13 |
| 25.0 | 57.19 | 57.47 | 57.00 | 61.78 | 141.43 | 150.91 | 150.17 | 61.76 | 56.90 | 57.38 |
| 26.0 | 57.40 | 57.72 | 57.28 | 62.14 | 142.01 | 151.58 | 150.81 | 62.12 | 57.20 | 57.65 |
| 27.0 | 57.61 | 57.96 | 57.56 | 62.45 | 141.75 | 151.34 | 150.54 | 62.44 | 57.48 | 57.91 |
| 28.0 | 57.81 | 58.20 | 57.85 | 62.80 | 142.14 | 151.80 | 150.97 | 62.79 | 57.75 | 58.13 |
| 29.0 | 58.01 | 58.43 | 58.12 | 63.10 | 141.57 | 151.22 | 150.36 | 63.08 | 58.01 | 58.34 |
| 30.0 | 58.20 | 58.66 | 58.39 | 63.37 | 140.57 | 150.19 | 149.30 | 63.35 | 58.28 | 58.57 |
| 31.0 | 58.39 | 58.88 | 58.67 | 63.69 | 140.43 | 150.06 | 149.15 | 63.67 | 58.56 | 58.81 |
| 32.0 | 58.57 | 59.10 | 58.95 | 63.99 | 140.10 | 149.74 | 148.80 | 63.98 | 58.84 | 59.04 |
| 33.0 | 58.75 | 59.32 | 59.23 | 64.34 | 140.13 | 149.80 | 148.84 | 64.32 | 59.10 | 59.24 |
| 33.5 | 58.77 | 59.35 | 59.30 | 64.33 | 143.72 | 153.47 | 152.53 | 64.31 | 59.17 | 59.27 |
| 35.0 | 58.67 | 59.08 | 58.77 | 60.11 | 63.17 | 66.18 | 65.02 | 60.09 | 58.70 | 59.01 |
| 37.0 | 58.83 | 59.29 | 59.12 | 60.41 | 62.98 | 65.80 | 64.70 | 60.39 | 59.04 | 59.22 |
| 39.0 | 58.94 | 59.43 | 59.39 | 60.67 | 62.92 | 65.57 | 64.53 | 60.65 | 59.30 | 59.36 |
| 41.0 | 59.00 | 59.52 | 59.59 | 60.89 | 62.89 | 65.37 | 64.40 | 60.87 | 59.51 | 59.48 |
| 43.0 | 59.01 | 59.57 | 59.75 | 61.07 | 62.88 | 65.19 | 64.28 | 61.05 | 59.66 | 59.52 |
| 45.0 | 58.96 | 59.55 | 59.84 | 61.18 | 62.86 | 65.05 | 64.19 | 61.17 | 59.77 | 59.56 |

Table B - 14: Temperature (°C) map of the west side of plate 6ZH-1 at EOC 146B (39.2 EFPD).

| Length of Plate (in) | Width of Plate (inches) | | | | | | | | | |
|----------------------|-------------------------|-------|-------|-------|--------|--------|--------|-------|-------|-------|
| | 0.00 | 0.08 | 0.16 | 0.25 | 0.50 | 1.00 | 1.50 | 2.00 | 2.08 | 2.16 |
| 0.0 | 51.67 | 51.67 | 51.67 | 51.77 | 51.76 | 51.76 | 51.76 | 51.77 | 51.67 | 51.67 |
| 1.0 | 52.50 | 52.46 | 52.11 | 51.85 | 51.79 | 51.78 | 51.78 | 51.85 | 52.07 | 52.44 |
| 3.0 | 52.80 | 52.75 | 52.27 | 51.92 | 51.84 | 51.83 | 51.83 | 51.92 | 52.20 | 52.68 |
| 5.0 | 53.11 | 53.03 | 52.43 | 52.00 | 51.89 | 51.88 | 51.88 | 52.00 | 52.36 | 52.96 |
| 7.0 | 53.41 | 53.31 | 52.59 | 52.08 | 51.94 | 51.93 | 51.93 | 52.07 | 52.49 | 53.18 |
| 9.0 | 53.71 | 53.58 | 52.75 | 52.15 | 51.99 | 51.98 | 51.98 | 52.15 | 52.68 | 53.54 |
| 11.0 | 54.11 | 54.00 | 53.09 | 52.89 | 54.70 | 55.63 | 55.54 | 52.88 | 52.98 | 53.87 |
| 11.5 | 54.52 | 54.66 | 53.98 | 57.36 | 135.61 | 143.64 | 143.43 | 57.34 | 53.91 | 54.52 |
| 12.0 | 54.69 | 54.86 | 54.15 | 57.60 | 131.46 | 139.40 | 139.15 | 57.59 | 54.07 | 54.70 |
| 13.0 | 54.91 | 55.09 | 54.36 | 57.89 | 132.06 | 140.16 | 139.84 | 57.88 | 54.29 | 54.95 |
| 14.0 | 55.13 | 55.35 | 54.62 | 58.29 | 134.01 | 142.37 | 141.99 | 58.28 | 54.54 | 55.20 |
| 15.0 | 55.37 | 55.61 | 54.89 | 58.65 | 134.94 | 143.47 | 143.03 | 58.63 | 54.79 | 55.42 |
| 16.0 | 55.60 | 55.88 | 55.19 | 59.10 | 137.12 | 145.92 | 145.42 | 59.08 | 55.08 | 55.66 |
| 17.0 | 55.85 | 56.17 | 55.50 | 59.52 | 138.55 | 147.56 | 147.00 | 59.50 | 55.43 | 56.04 |
| 18.0 | 56.09 | 56.45 | 55.82 | 59.88 | 138.81 | 147.95 | 147.33 | 59.87 | 55.76 | 56.36 |
| 19.0 | 56.33 | 56.74 | 56.15 | 60.30 | 139.83 | 149.15 | 148.47 | 60.28 | 56.09 | 56.61 |
| 20.0 | 56.58 | 57.03 | 56.51 | 60.77 | 141.46 | 151.00 | 150.26 | 60.75 | 56.41 | 56.83 |
| 21.0 | 56.82 | 57.32 | 56.86 | 61.16 | 141.51 | 151.15 | 150.35 | 61.14 | 56.75 | 57.09 |
| 22.0 | 57.06 | 57.62 | 57.23 | 61.59 | 142.22 | 152.01 | 151.16 | 61.57 | 57.13 | 57.42 |
| 23.0 | 57.30 | 57.92 | 57.60 | 62.02 | 142.74 | 152.65 | 151.75 | 62.00 | 57.51 | 57.71 |
| 24.0 | 57.54 | 58.22 | 57.98 | 62.48 | 143.65 | 153.71 | 152.76 | 62.46 | 57.87 | 57.97 |
| 25.0 | 57.78 | 58.51 | 58.36 | 62.87 | 143.32 | 153.45 | 152.44 | 62.85 | 58.26 | 58.28 |
| 26.0 | 58.01 | 58.81 | 58.75 | 63.34 | 144.06 | 154.32 | 153.26 | 63.31 | 58.69 | 58.65 |
| 27.0 | 58.24 | 59.10 | 59.15 | 63.76 | 143.96 | 154.29 | 153.18 | 63.74 | 59.10 | 58.99 |
| 28.0 | 58.47 | 59.40 | 59.55 | 64.22 | 144.50 | 154.95 | 153.79 | 64.20 | 59.48 | 59.23 |
| 29.0 | 58.68 | 59.68 | 59.95 | 64.63 | 144.09 | 154.58 | 153.37 | 64.60 | 59.85 | 59.43 |
| 30.0 | 58.90 | 59.96 | 60.34 | 65.01 | 143.26 | 153.76 | 152.50 | 64.98 | 60.24 | 59.69 |
| 31.0 | 59.11 | 60.24 | 60.74 | 65.44 | 143.28 | 153.83 | 152.53 | 65.41 | 60.66 | 60.01 |
| 32.0 | 59.31 | 60.52 | 61.14 | 65.86 | 143.11 | 153.70 | 152.36 | 65.83 | 61.06 | 60.28 |
| 33.0 | 59.51 | 60.79 | 61.55 | 66.32 | 143.29 | 153.95 | 152.57 | 66.28 | 61.45 | 60.51 |
| 33.5 | 59.52 | 60.82 | 61.66 | 66.36 | 146.91 | 157.65 | 156.30 | 66.33 | 61.57 | 60.56 |
| 35.0 | 59.38 | 60.50 | 61.29 | 62.30 | 66.20 | 70.18 | 68.62 | 62.27 | 61.19 | 60.31 |
| 37.0 | 59.56 | 60.75 | 61.75 | 62.68 | 66.04 | 69.78 | 68.30 | 62.66 | 61.66 | 60.57 |
| 39.0 | 59.68 | 60.94 | 62.12 | 63.01 | 65.98 | 69.47 | 68.09 | 62.98 | 62.01 | 60.69 |
| 41.0 | 59.74 | 61.05 | 62.41 | 63.29 | 65.94 | 69.20 | 67.90 | 63.26 | 62.32 | 60.84 |
| 43.0 | 59.75 | 61.11 | 62.64 | 63.52 | 65.90 | 68.93 | 67.73 | 63.49 | 62.55 | 60.89 |
| 45.0 | 59.70 | 61.10 | 62.77 | 63.66 | 65.88 | 68.74 | 67.60 | 63.64 | 62.75 | 61.02 |

Table B - 15: Temperature (°C) map of the east side of plate 6ZH-2 at EOC 146B (39.2 EFPD).

| Length of Plate (in) | Width of Plate (inches) | | | | | | | | | |
|----------------------|-------------------------|-------|-------|-------|--------|--------|--------|-------|-------|-------|
| | 0.00 | 0.08 | 0.16 | 0.25 | 0.50 | 1.00 | 1.50 | 2.00 | 2.08 | 2.16 |
| 0.0 | 51.67 | 51.67 | 51.67 | 51.80 | 51.76 | 51.76 | 51.76 | 51.80 | 51.67 | 51.67 |
| 1.0 | 52.87 | 52.70 | 52.22 | 51.92 | 51.79 | 51.79 | 51.79 | 51.89 | 52.17 | 52.59 |
| 3.0 | 53.27 | 53.04 | 52.41 | 52.02 | 51.84 | 51.84 | 51.84 | 51.96 | 52.30 | 52.80 |
| 5.0 | 53.66 | 53.38 | 52.59 | 52.12 | 51.90 | 51.89 | 51.89 | 52.06 | 52.48 | 53.10 |
| 7.0 | 54.05 | 53.71 | 52.78 | 52.22 | 51.96 | 51.95 | 51.95 | 52.14 | 52.61 | 53.33 |
| 9.0 | 54.42 | 54.02 | 52.96 | 52.33 | 52.03 | 52.01 | 52.01 | 52.29 | 52.93 | 53.92 |
| 11.0 | 54.89 | 54.49 | 53.33 | 53.08 | 54.72 | 55.64 | 55.55 | 52.98 | 53.14 | 54.09 |
| 11.5 | 55.32 | 55.15 | 54.26 | 57.50 | 135.10 | 143.08 | 142.88 | 57.40 | 54.03 | 54.74 |
| 12.0 | 55.51 | 55.35 | 54.42 | 57.69 | 129.85 | 137.66 | 137.41 | 57.58 | 54.16 | 54.87 |
| 13.0 | 55.75 | 55.61 | 54.65 | 57.99 | 130.64 | 138.62 | 138.31 | 57.89 | 54.41 | 55.15 |
| 14.0 | 56.01 | 55.88 | 54.92 | 58.40 | 132.52 | 140.74 | 140.37 | 58.29 | 54.67 | 55.42 |
| 15.0 | 56.27 | 56.16 | 55.20 | 58.81 | 134.14 | 142.60 | 142.16 | 58.69 | 54.91 | 55.62 |
| 16.0 | 56.53 | 56.45 | 55.51 | 59.24 | 135.94 | 144.63 | 144.14 | 59.11 | 55.19 | 55.85 |
| 17.0 | 56.80 | 56.75 | 55.83 | 59.67 | 137.34 | 146.25 | 145.70 | 59.58 | 55.64 | 56.44 |
| 18.0 | 57.06 | 57.04 | 56.16 | 60.08 | 138.23 | 147.31 | 146.69 | 60.03 | 56.05 | 56.87 |
| 19.0 | 57.32 | 57.34 | 56.50 | 60.48 | 138.81 | 148.04 | 147.37 | 60.40 | 56.31 | 57.04 |
| 20.0 | 57.59 | 57.64 | 56.86 | 60.94 | 140.07 | 149.49 | 148.75 | 60.80 | 56.54 | 57.09 |
| 21.0 | 57.84 | 57.94 | 57.22 | 61.34 | 140.37 | 149.91 | 149.12 | 61.20 | 56.87 | 57.30 |
| 22.0 | 58.09 | 58.25 | 57.60 | 61.77 | 140.96 | 150.64 | 149.79 | 61.64 | 57.26 | 57.63 |
| 23.0 | 58.34 | 58.54 | 57.97 | 62.17 | 140.86 | 150.62 | 149.72 | 62.03 | 57.62 | 57.92 |
| 24.0 | 58.59 | 58.84 | 58.35 | 62.59 | 141.04 | 150.90 | 149.94 | 62.44 | 57.97 | 58.16 |
| 25.0 | 58.83 | 59.14 | 58.74 | 63.05 | 141.71 | 151.71 | 150.70 | 62.90 | 58.38 | 58.53 |
| 26.0 | 59.06 | 59.44 | 59.14 | 63.50 | 142.16 | 152.26 | 151.20 | 63.39 | 58.90 | 59.09 |
| 27.0 | 59.29 | 59.73 | 59.54 | 63.96 | 142.63 | 152.84 | 151.73 | 63.90 | 59.38 | 59.54 |
| 28.0 | 59.51 | 60.02 | 59.94 | 64.40 | 142.76 | 153.06 | 151.90 | 64.29 | 59.68 | 59.65 |
| 29.0 | 59.72 | 60.30 | 60.33 | 64.81 | 142.54 | 152.89 | 151.69 | 64.66 | 59.95 | 59.67 |
| 30.0 | 59.92 | 60.57 | 60.73 | 65.22 | 142.08 | 152.46 | 151.21 | 65.06 | 60.33 | 59.88 |
| 31.0 | 60.12 | 60.84 | 61.13 | 65.66 | 142.17 | 152.62 | 151.32 | 65.51 | 60.76 | 60.21 |
| 32.0 | 60.31 | 61.11 | 61.53 | 66.06 | 141.45 | 151.90 | 150.57 | 65.91 | 61.15 | 60.46 |
| 33.0 | 60.49 | 61.37 | 61.94 | 66.54 | 142.05 | 152.59 | 151.22 | 66.37 | 61.51 | 60.65 |
| 33.5 | 60.50 | 61.40 | 62.06 | 66.65 | 146.97 | 157.68 | 156.34 | 66.49 | 61.66 | 60.77 |
| 35.0 | 60.32 | 61.06 | 61.64 | 62.61 | 66.36 | 70.30 | 68.74 | 62.48 | 61.39 | 60.66 |
| 37.0 | 60.44 | 61.28 | 62.09 | 63.00 | 66.21 | 69.90 | 68.44 | 62.87 | 61.84 | 60.89 |
| 39.0 | 60.49 | 61.42 | 62.45 | 63.32 | 66.16 | 69.61 | 68.23 | 63.17 | 62.11 | 60.85 |
| 41.0 | 60.48 | 61.49 | 62.72 | 63.59 | 66.12 | 69.35 | 68.06 | 63.45 | 62.42 | 60.97 |
| 43.0 | 60.41 | 61.50 | 62.93 | 63.81 | 66.10 | 69.09 | 67.89 | 63.67 | 62.61 | 61.01 |
| 45.0 | 60.29 | 61.45 | 63.04 | 63.94 | 66.08 | 68.90 | 67.76 | 63.89 | 62.94 | 61.36 |

Table B - 16: Temperature (°C) map of the west side of plate 6ZH-2 at EOC 146B (39.2 EFPD).

| Length of Plate (in) | Width of Plate (inches) | | | | | | | | | |
|----------------------|-------------------------|-------|-------|-------|--------|--------|--------|-------|-------|-------|
| | 0.00 | 0.08 | 0.16 | 0.25 | 0.50 | 1.00 | 1.50 | 2.00 | 2.08 | 2.16 |
| 0.0 | 51.67 | 51.67 | 51.67 | 51.79 | 51.76 | 51.76 | 51.76 | 51.79 | 51.67 | 51.67 |
| 1.0 | 53.24 | 53.13 | 52.44 | 51.90 | 51.79 | 51.79 | 51.79 | 51.88 | 52.25 | 52.94 |
| 3.0 | 53.73 | 53.58 | 52.69 | 52.00 | 51.85 | 51.85 | 51.85 | 51.96 | 52.37 | 53.00 |
| 5.0 | 54.20 | 54.00 | 52.94 | 52.10 | 51.92 | 51.91 | 51.91 | 52.07 | 52.55 | 53.28 |
| 7.0 | 54.66 | 54.42 | 53.18 | 52.21 | 51.99 | 51.98 | 51.98 | 52.16 | 52.73 | 53.62 |
| 9.0 | 55.10 | 54.81 | 53.42 | 52.32 | 52.07 | 52.05 | 52.06 | 52.30 | 53.26 | 54.92 |
| 11.0 | 55.62 | 55.32 | 53.81 | 53.09 | 54.76 | 55.68 | 55.59 | 53.02 | 53.26 | 54.44 |
| 11.5 | 56.01 | 55.93 | 54.66 | 57.51 | 135.13 | 143.10 | 142.90 | 57.44 | 54.13 | 54.96 |
| 12.0 | 56.20 | 56.13 | 54.81 | 57.68 | 129.86 | 137.64 | 137.40 | 57.60 | 54.24 | 54.95 |
| 13.0 | 56.46 | 56.39 | 55.01 | 57.94 | 130.57 | 138.48 | 138.19 | 57.87 | 54.43 | 55.20 |
| 14.0 | 56.73 | 56.66 | 55.23 | 58.29 | 132.34 | 140.45 | 140.12 | 58.22 | 54.66 | 55.49 |
| 15.0 | 57.00 | 56.94 | 55.47 | 58.64 | 133.84 | 142.13 | 141.76 | 58.55 | 54.84 | 55.70 |
| 16.0 | 57.27 | 57.22 | 55.72 | 59.00 | 135.51 | 143.98 | 143.58 | 58.90 | 55.08 | 55.96 |
| 17.0 | 57.54 | 57.51 | 55.98 | 59.35 | 136.78 | 145.41 | 144.96 | 59.29 | 55.53 | 56.96 |
| 18.0 | 57.81 | 57.79 | 56.24 | 59.69 | 137.52 | 146.27 | 145.79 | 59.64 | 56.05 | 57.74 |
| 19.0 | 58.06 | 58.06 | 56.51 | 60.02 | 137.96 | 146.80 | 146.28 | 59.95 | 56.05 | 57.53 |
| 20.0 | 58.32 | 58.34 | 56.79 | 60.39 | 139.07 | 148.05 | 147.50 | 60.28 | 56.08 | 57.02 |
| 21.0 | 58.58 | 58.62 | 57.07 | 60.71 | 139.23 | 148.28 | 147.69 | 60.60 | 56.33 | 57.08 |
| 22.0 | 58.81 | 58.88 | 57.34 | 61.06 | 139.68 | 148.81 | 148.18 | 60.95 | 56.60 | 57.26 |
| 23.0 | 59.04 | 59.13 | 57.62 | 61.37 | 139.42 | 148.58 | 147.92 | 61.26 | 56.86 | 57.48 |
| 24.0 | 59.28 | 59.40 | 57.90 | 61.69 | 139.45 | 148.66 | 147.97 | 61.57 | 57.13 | 57.77 |
| 25.0 | 59.48 | 59.64 | 58.19 | 62.06 | 139.98 | 149.27 | 148.55 | 61.94 | 57.42 | 58.17 |
| 26.0 | 59.69 | 59.88 | 58.47 | 62.41 | 140.27 | 149.63 | 148.87 | 62.32 | 57.95 | 59.23 |
| 27.0 | 59.89 | 60.12 | 58.75 | 62.77 | 140.59 | 150.01 | 149.23 | 62.70 | 58.55 | 60.04 |
| 28.0 | 60.08 | 60.34 | 59.03 | 63.11 | 140.57 | 150.03 | 149.21 | 63.02 | 58.49 | 59.60 |
| 29.0 | 60.26 | 60.55 | 59.30 | 63.43 | 140.20 | 149.66 | 148.82 | 63.29 | 58.53 | 59.02 |
| 30.0 | 60.42 | 60.76 | 59.57 | 63.73 | 139.58 | 149.03 | 148.16 | 63.59 | 58.79 | 59.08 |
| 31.0 | 60.58 | 60.95 | 59.84 | 64.07 | 139.52 | 149.00 | 148.10 | 63.93 | 59.10 | 59.30 |
| 32.0 | 60.73 | 61.15 | 60.11 | 64.36 | 138.64 | 148.08 | 147.16 | 64.23 | 59.33 | 59.37 |
| 33.0 | 60.86 | 61.33 | 60.37 | 64.74 | 139.10 | 148.60 | 147.65 | 64.59 | 59.58 | 59.51 |
| 33.5 | 60.85 | 61.33 | 60.44 | 64.81 | 144.00 | 153.67 | 152.75 | 64.66 | 59.69 | 59.77 |
| 35.0 | 60.66 | 60.96 | 59.94 | 60.63 | 63.54 | 66.46 | 65.32 | 60.51 | 59.36 | 60.16 |
| 37.0 | 60.69 | 61.04 | 60.23 | 60.94 | 63.38 | 66.11 | 65.03 | 60.82 | 59.68 | 60.28 |
| 39.0 | 60.64 | 61.05 | 60.44 | 61.22 | 63.34 | 65.90 | 64.89 | 61.07 | 59.77 | 59.62 |
| 41.0 | 60.54 | 61.00 | 60.58 | 61.44 | 63.34 | 65.73 | 64.77 | 61.31 | 59.96 | 59.59 |
| 43.0 | 60.37 | 60.88 | 60.66 | 61.63 | 63.34 | 65.56 | 64.67 | 61.48 | 60.07 | 59.66 |
| 45.0 | 60.17 | 60.72 | 60.68 | 61.74 | 63.34 | 65.43 | 64.59 | 61.65 | 60.59 | 60.61 |